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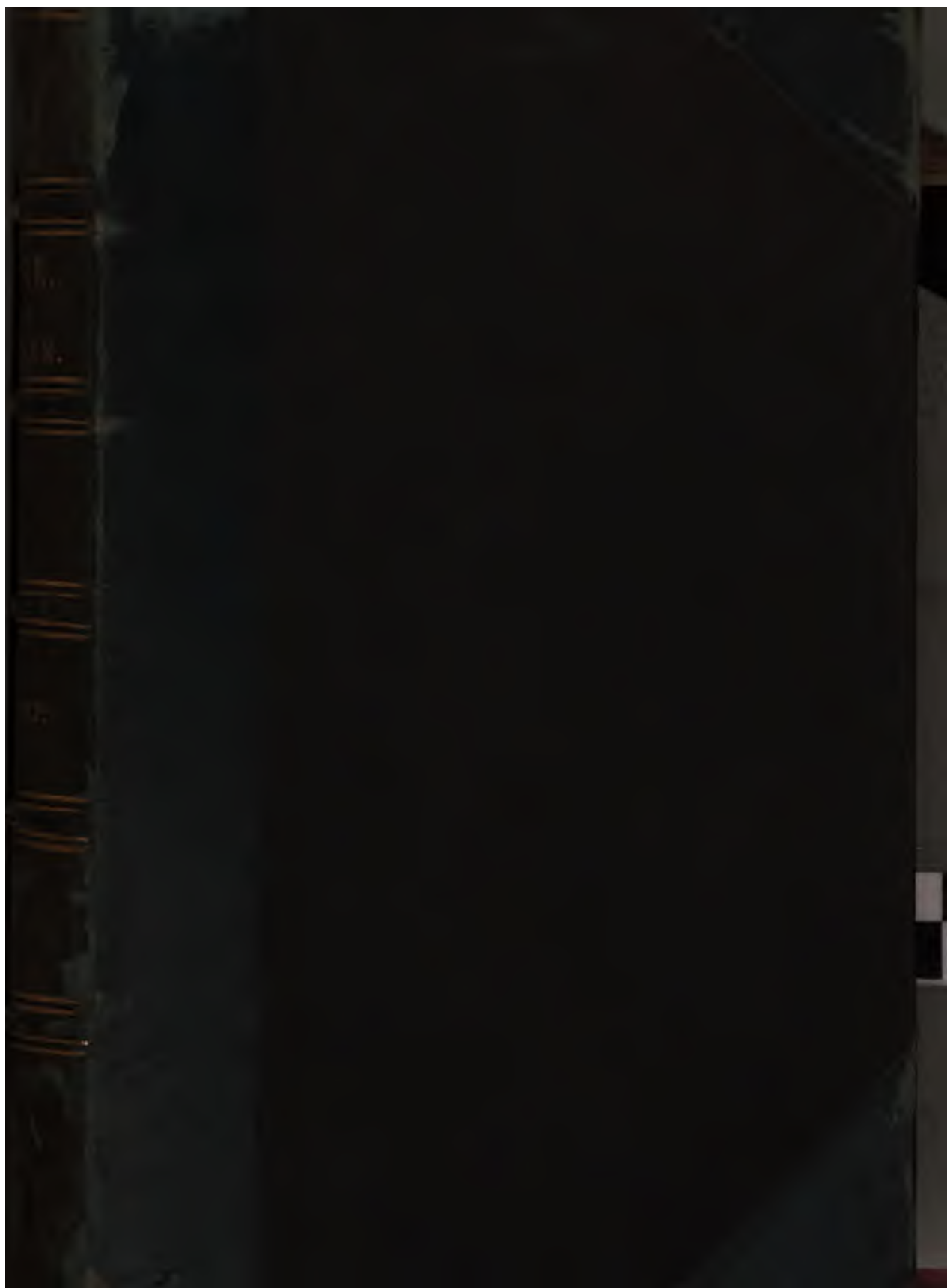
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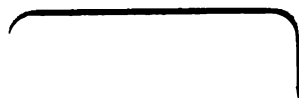
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Part

PART I.]

[APRIL.

HOOKER'S  
ICONES PLANTARUM;

—

FIGURES, WITH DESCRIPTIVE CHARACTERS AND REMARKS  
OF NEW AND RARE PLANTS,

SELECTED FROM THE

KEW HERBARIUM.

THIRD SERIES.

EDITED BY

JOSEPH DALTON HOOKER, M.D., F.R.S. L.S. & G.S.,

DELE. SECR., L'ÉCOLE CENTRAL, COURSE MÉD. 1867, PARIS.

VOL. IV.,

OR VOL. XIV. OF THE ENTIRE WORK.

WILLIAMS AND NORGATE,

14, HENRIETTA STREET, COVENT GARDEN, LONDON;

AND 20, SOUTH FREDERICK STREET, EDINBURGH.

1884.





PART II.]

[FEBRUARY.

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1881.





RT III.]

[OCTOBER.

HOOKER'S  
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1881.



PART IV.]

[JUNE.

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BLACK, CRUIK, & CO. LONDON, & EDINBURGH, 1852. FRANK.

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D.C.L. OXON., LL.D. CANTAB. AND GIOTT., CORRESP. MEMB. INST. FRANCE :  
DIRECTOR OF THE ROYAL BOTANICAL GARDENS, KEW.

VOL. IV.,

OR VOL. XIV. OF THE ENTIRE WORK.

PART I. 1301-1325, April 1880.

PART II. 1326-1350, February 1881.

PART III. 1351-1375, October 1881.

PART IV. 1376-1400, June 1882.

WILLIAMS AND NORGATE,  
14, HENRIETTA STREET, COVENT GARDEN, LONDON ;  
AND 20, SOUTH FREDERICK STREET, EDINBURGH.  
1880-1882.



This and the species figured in the following plate form a new genus, now first published in our 'Genera Plantarum,' and belonging to an order previously unknown in Africa. The genus is closely allied to the American genus *Siparuna*, and has probably the same fruit, but appears sufficiently distinct in its alternate leaves and very peculiar perianth.—G. BENTHAM.

Plate 1301, Male plant. Fig. 1. Perianth. 2. The same seen from above, the long point of the limb cut away. 3, 4. Stamens.

## PLATE 1302.

### GLOSSOCALYX BREVIPES, Benth.

MONIMIACEÆ, Tribe ATHEROSPERMEÆ.

*G. brevipes*, Benth., *sp. n.* foliis brevissime petiolatis basi oblique subcordatis, perianthii lobo majore tubo duplo v. vix triplo longiore.

HAB. Cameroon river, West tropical Africa, Mann, n. 722 and 2196.

*Frutex* 10-pedalis. *Specimina* primo aspectu iis *G. longicuspis* simillima, sed folia omnia integerrima videntur, paullo minora, acumine brevior et basi rotundato-subcordata plus minus inæqualia, petiolo 1 v. vix 2 lin. longo. *Flores* minores, in fasciculo præsertim masculi numerosiores, pedicello vix 2 lin. longo, perianthii dentibus 2-lobis minus inæqualibus, acumine vix 2 lin. excedente.—G. BENTHAM.

Plate 1302, Female plant. Fig. 1. Perianth. 2. Perianth-tube, longitudinal section, showing the manner in which the carpels are included in the fleshy disk. 3. Perianth seen from above, the long point cut away.

## PLATE 1303.

### LORANTHUS MANNII, Oliv.

LORANTHACEÆ.

*L. (§ Heteranthus) Mannii*, Oliv., in *Journ. Linn. Soc.* vii. 101, ramis subteretibus, cortice glabro punctato, foliis suboppositis ovalilanceolatis apice obtuse subacuminatis glabris petiolatis, floribus incurvis 4-meris racemosis, racemis axillaribus folio brevioribus, pedicellis

patentibus calycem sequantibus, bracteis minutis, petalis lineari-lanceolatis basi leviter dilatatis, antheris continuis linearibus multilocellatis.

HAB. Island of St. Thomas, alt. 5,000 ft., *G. Mann*!

*Folia* 2-3 poll. longa,  $\frac{3}{8}$ -1 poll. lata tenniter coriacea; petiolus  $\frac{1}{8}$ - $\frac{1}{3}$  poll. longus. *Flores*  $\frac{1}{2}$  poll. longi sæpius curvati.—D. OLIVER.

Fig. 1. Flower. 2. Petal and adnate stamens.

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PLATE 1304.

**LORANTHUS CURVIFLORUS**, *Benth.*

LORANTHACEÆ.

*L.* (§ *Plicopetalus*) *curviflorus*, *Benth.*, ramulis teretibus, foliis alternis lineari-v. spatulato-oblongis obtusis, floribus axillaribus incurvis umbellatis, umbellis breviter pedunculatis 4-7-floris, calycis limbo sub-integro tubo turbinato, petalis liberis superne attenuatis basi dilatatis intus plicis utrinque 3-5 obliquis elevatis instructis, antheris continuis longe linearibus, stigmate obtuso subcapitato.

HAB. Abyssinia, *Plowden*! and, apparently the same, Somali Coast, *Dr. Kirk*!

*Folia* 1-2 poll. longa,  $\frac{1}{8}$ - $\frac{1}{3}$  poll. lata. *Pedunculi*  $\frac{1}{4}$ - $\frac{1}{2}$  poll. longi; pedicelli æquilongi, apice breviter cupulatum dilatati bractea carnosula parva lateraliter gibbosi. *Flores*  $1\frac{1}{2}$ - $1\frac{3}{4}$  poll. longi, incurvi.

This species belongs to the section *Plicopetalus*, Benth. ('Genera Plantarum,' iii. 208), which includes also *L. undulatus*, E. Mey. of the Cape of Good Hope.—D. OLIVER.

Fig. 1. Flower. 2. Petal and adnate stamens.

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PLATE 1305.

**EUPHORBIA ZAMBESIANA**, *Benth.*

EUPHORBIACEÆ, Tribe EUPHORBIEÆ.

*E.* (*Anisophyllum*, § *Pleiadenia*) *zambesiana*, *Benth.*, *sp. nov.*, glabra, rhizomate crasso, caulibus numerosis pumilis ramulosis, foliis parvis

oppositis squamiformibus v. superioribus ovato-oblongis integerrimis, stipulis minimis, involucris pedicellatis terminalibus v. pseudo-axillaribus hemisphaericis brevissime lobatis, glandulis transverse oblongis, appendice lata alba petaloidea varie lobata involucri ipso sublongiore, capsula brevi.

HAB. East tropical Africa on the Zambesi, Zomba, and east end of Lake Shirwa, *Livingstone's Expedition*; Shire highlands, *Buchanan*.

*Caules* e rhizomate crasso carnosulo dense caespitosi, erecti, in specimenibus floridis 1-2-pollicares, adsunt tamen hinc inde vetustiorum reliquiae 3-4-pollicares, laxè ramosi. *Folia* inferiora squamiformia, superiora ovata v. oblonga, acutiuscula, 2-3 lin. longa, v. in specimenibus vegetioribus parvis summi lanceolata subsemipollicaria, basi breviter contracta, vix tamen obliqua. *Involucra* ad apices ramulorum supra par summum pedicello 1-3 lin. longo fulta, nonnulla (ramulo aphylo) axillaria apparent pedicello semipollicari v. longiore, 1-1½ lin. diametro, laevia, lobis saepissime 5 minimis triangularibus v. denticulatis. *Glandulae* transverse oblongae, majusculae, appendicibus petaloideis valde conspicuis albis late patentibus irregulariter et obtuse 2-4-lobis. *Bracteolae* intra involucrium lineares, lacerae, irregulariter connatae. *Flores* masculi subinclusi, foemineus breviter exsertus, glaber, stylis 2-fidis recurvis breviter connatis. *Capsula* matura nobis deest.

This curious little species is totally unlike any other African or Asiatic species, but comes very near to the South Brazilian *E. potentilloides* and *E. chamaerhodos*, Boiss., figured in that author's splendid 'Icones Euphorbiarum,' tt. 24 and 25, although specifically distinct from both either in the involucre or in the styles. There are several specimens from each of three different localities, but all very similar to each other.—G. BENTHAM.

Fig. 1. Involucre. 2. The same opened out, showing the dorsal glands. 3. Male flowers with the bracteoles turned down. 4. Female flower.

## PLATES 1306, 1307.

### MUSANGA SMITHII, R. Br.

#### URTICACEÆ, Tribe CONOCEPHALEÆ.

**M. Smithii**, R. Br. in *Benn. Pl. Jav. Rar.* 49, single species.

HAB. Tropical Africa, on the Congo, *Chr. Smith*; Sierra Leone, *Barter*, *Mrs. Mair*; Fernando Po, *Barter*, *Mann*; and apparently the same species on the Kusumbo, Monbuttu Land, *Schweinfurth*, n. 3205.

*Arbor* pulcherrima, 40-80-pedalis, coma patente, ramulis crassis. *Folia* alterna, longe petiolata, ampla, peltata, fere ad basin radiatim divisa, segmentis 11-15 anguste oblongis breviter acuminatis basi longiuscule contractis interdum ultrapedalibus 2-3 poll. latis, glabris puberulisve supra viridibus subtus albidis integerrimis subtus parallele penniveniis, venulis transversis tenuissimis. *Stipulae* in unam intrapetioliarem membranaceo-coriaceam 4-pollicarem extus tomentoso-villosam intus longe sericeo-villosam inflorescentias juniores includentem coalitæ, caducissimæ. *Paniculae* ♂ ad axillas solitariae, pedunculatae, 3-4-pollicares, repetito-ramosissimæ, florum capitulis numerosis globosis vix 2 lin. diametro. *Flores* in capitulo sessiles ad axillas bractearum stipitatarum apice subpeltato-dilatatarum. *Perianthium* tubulosum, apice truncatum. *Stamen* 1, filamentum recto, anthera breviter exserta. *Flores* ♀ in massas ovoideas v. obovato-oblongas 2-pollicares ad axillas geminatim pedunculatas dispositi, in capitulo sessiles, numerosissimi, arctissime conferti. *Perianthium* lineari-clavatatum, vertice foramine minuto pertusum. *Ovarium* sessile, ovulo unico a basi erecto, stylo filiformi e perianthio breviter exserto. *Achanium* perianthio parum aucto fibroso-carnoso apice crasso inclusum, pericarpio duro nitido. *Semen* pericarpio conforme, erectum, testa membranacea; albumen tenue; cotyledones oblongæ æquales, radícula brevi supera.—G. BENTHAM.

Plate 1306, Male plant. Fig. 1. Perianth and bract. 2. Bract. 3. Perianth split open, showing the stamen.

Plate 1307, Female plant. Fig. 1. Perianth. 2. Perianth and ovary, longitudinal section. 3. Achene. 4. Seed. 5. Embryo.

## PLATE 1308.

### GANOPHYLLUM FALCATUM, Blume.

#### ANACARDIACEÆ.

*G. falcatum*, Blume, *Mus. Bot. Lugd. Bat.* i. 230.

*Folia* 9-14-foliolatis glabris nitidis; foliolis alternis breviter petiolulatis oblique ovato-lanceolatis sæpius breviter et obtuse acuminatis integerrimis, paniculis axillaribus folio brevioribus pedunculatis, pedicellis calycem æquantibus, laciniis calycinis ovatis, staminibus (in fl. ♂) exsertis, drupis exsuccis ellipsoideis apiculatis.—*F. v. Mueller, Fragm.* vii. 24.

*HAB.* Indian Archipelago, *Blume and others*; Carpentaria, *R. Brown* (*Herb.* 5492)! Port Darwin, *Schultz*! Port Denison! Rockingham Bay and Torres Straits (*F. v. Mueller, l. c.*).

*Arbor* glabra innovationibus sæpius balsamo obductis. *Folia*  $\frac{3}{4}$ -1 ped. longa; foliola  $1\frac{1}{2}$ -3 poll. longa,  $\frac{2}{3}$ - $1\frac{1}{2}$  poll. lata. *Drupa*  $\frac{1}{2}$  poll. longa utrinque acutata. *Cotyledones* incumbentes plicato-incurvæ carnosæ.

This interesting addition to the Australian flora has been well and fully described by the Baron von Mueller (*l. c.*), who points out that fruiting specimens (of which we had then only very imperfect fragments) were referred to *Euroschinus falcatus*, Hk. f., in Benth. *Flora Australiensis*, i. 490.—D. OLIVER.

Fig. 1. Staminate flower. 2. Rudiment of pistil from same. 3 and 4. Side and front views of embryo.

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PLATE 1309.

LORANTHUS KIRKII, Oliv.

LORANTHACEÆ.

**L.** (§ *Acrostachys*) **Kirkii**, Oliv. in *Journ. Linn. Soc.* vii. 101, ramulis teretibus cortice glabro striato, foliis alternis v. suboppositis petiolatis, ovatis v. obovato-ellipticis obtusis glabris, floribus 4-meris in racemis multifloris terminalibus elongatis dispositis, pedicellis patentibus, bractea ovata obtusa, petalis liberis basi parum dilatatis, antheris linearibus.

**HAB.** Rovuma Bay and Dar Salam, E. tropical Africa, *Dr. Kirk!*

*Rami* sæpe verruculosi. *Folia*  $\frac{3}{4}$ -2 poll. longa,  $\frac{3}{4}$ - $1\frac{1}{2}$  poll. lata; petiolus  $\frac{1}{4}$ - $\frac{1}{2}$  poll. longus. *Racemi* 4-6 poll. longi, breviter pedunculati vel a basi floriferi. *Pedicelli*  $\frac{1}{4}$  poll. longi. *Flores*  $\frac{1}{2}$  poll. longi.—D. OLIVER.

Fig. 1. Flower; the bract usually does not exceed half the ovary in length. 2. Petal and adnate stamen.

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PLATE 1310.

**FARSETIA BURTONÆ, Oliv.**

CRUCIFERÆ, Tribe ALYSSINÆ.

**F. Burtonæ**, *Oliver in App. iv. to Capt. Burton's Land of Midian Revisited*, 1879, caulibus divaricatis pilis malpighiaceis appressis incanis foliosis, foliis lineari-oblongeolatis acutis basi angustatis utrinque dense pilosis, racemis paucifloris, alabastris lanceolatis acutatis, petalis spathulatis, stigmatibus breviter bilobulato, siliqua oblonga compressa stylo persistente fere duplo longiore.

HAB. North and Central Midian, *Captain Burton*!

*Herba* basi suffruticosa 6-10-pollicaris, pilis simplicibus mediofixis induta. *Folia* 1-1½ poll. longa integra. *Pedicelli* flore breviores. *Sepala* lineari-oblonga apicem versus angustata, unguis petalorum subæquantia. *Filamenta* edentula. *Ovula* 6-7 subuniseriata. *Siliqua* ½-1½ poll. longa; ⅓-½ poll. lata.

With this interesting new *Farsetia* the name of Captain Burton's most efficient and enthusiastic helpmate may well be associated.—  
D. OLIVER.

Fig. 1. Sepal. 2. Petal. 3. Stamens. 4. Pistil.

PLATE 1311.

**ASTROSTEMMA SPARTIOIDES, Benth.**

ASCLEPIADEÆ, Tribe CYNANCHEÆ.

**Astrostemma**, *Benth., gen. nov.* *Calyx* parvus, alte 5-fidus, eglandulosus. *Corollæ* tubus calyce sublongior, turbinatus; limbus dilatatus, alte 5-fidus, lobis inflexis conniventibus angustissime contorto-imbricatis. *Corona* simplex, tubo stamineo affixa, fere ad basin in lobos 5 planos stellato-patentes divisa. *Stamina* basi corollæ affixa, filamentis in tubum brevem latum connatis; antheræ membrana inflexa parva terminatæ. *Pollinia* in quoque loculo solitaria, ovoidea, ab apice pendula. *Stigma* vertice planum. *Polliculi* . . . Frutex per anthesin

aphyllus, junior folia perpauca parva ferens. Ramuli juncei, apice spicam brevem ferentes, floribus parvis.

*A. spartioides*, Benth., single species.

HAB. Bangarmassing, Borneo, common in holes of trees, looking as if it were truly parasitical, but the roots only line the holes, *J. Motley*; also Northern Borneo, *Burbridge*.

*Fruticulus* epiphyticus, carnosulus, habitu *Sarcostemmatis*. Folia in planta juniore v. in ramulis nonnullis brevissimis perpauca, opposita, ovata, semipollicaria. Rami floridi aphylli, ramulos emittentes plures junciformes, simplices, 3-6 poll. longi. Spica seu racemulus in quoque ramulo terminalis, rhachi 2-3 lin. longa parum incrassata cicatricibus annularibus notata cæterum ebracteata. Flores oppositi, vix 2 lin. diametro, pedicello 1 lin. longo fulti. Fructus nobis deest.—G. BENTHAM.

Fig. 1. Flower, enlarged. 2. Corona, seen from above; the anthers and glands appearing between the lobes. 3. A pair of pollen-masses with the connecting gland.

## PLATE 1312, 1313.

### QUERCUS JENKINSII, Benth.

CUPULIFERÆ, Tribe QUERCINEÆ.

*Q. (Chlamydobalanus) Jenkinsii*, Benth., sp. nov., foliis integerrimis subtus pallidis, spicis erectis, masculis paniculato-ramosis, foemineis simplicibus, involucri solitariis, fructiferis subglobosis clausis duris squamarum apicibus conicis undique echinatis, nuce incluso nec adnato, pericarpio crasso osseo, cotyledonibus crassis lævibus.

HAB. Upper Assam, *Griffith, Jenkins*; and bordering provinces of Burmah, on the Mogoung river, *Griffith*.

*Arbor* glabra v. inflorescentia tenuissime tomentella. Folia coriacea, oblonga, acuminata, 8-12 poll. longa, 3-5 poll. lata, basi acuta, petiolo  $\frac{1}{2}$ -1 $\frac{1}{2}$  poll. longo, subtus pallida vix tamen incana, venis primariis simplicibus parallelis subtus prominentibus ad utrumque latus costæ 12-16. Stipulae angustæ, caducæ. Flores ut videtur dioici. Spicæ erectæ, masculæ in panicula longa secus rhachin simplices, numerosæ, foemineæ in axillis superioribus plures, simplices, 6-10-pollicares. Involucra foeminea sub bractea minima solitaria, arcte sessilia, sub anthesi 1-1 $\frac{1}{2}$  lin. diametro, squamis numerosis crassis basi connatis, mox aucta globosæ undique densissime echinata. Styli 3, breviter exserti, crassi, erecto-patentes, apice stigmatosi. Involucrum fructiferum globosum v.

vix longius quam latum ad  $1\frac{1}{2}$  poll. diametro, minutissime tomentellum, durum at parum incrassatum, squamarum apicibus conicis v. recurvis valde prominentibus numerosissimis irregulariter zonatis undique echinatum et perfecte clausum. Nux inclusa, globosa,  $1\frac{1}{2}$  poll. diametro, ab involucre basi excepta omnino libera; pericarpium osseum, 2 lin. crassum.

This species closely connects the sections *Chlamydobalanus* and *Lithocarpus*, having the woody pericarp of the latter, but the nut entirely free from the involucre, though enclosed in it, as in *Chlamydobalanus*. Griffith's specimens are males and females in flower and with young fruits; the ripe fruits were received from Jenkins.—G. BENTHAM.

Plate 1313, Male specimen; Plate 1312, Female specimen. 1. Flower, enlarged. 2. The same, the involucre cut through, showing the perianth and styles. 3. Young fruiting involucre. 4. Ripe fruit. 5. The same, transverse section.

## PLATE 1314.

### QUERCUS MAINGAYI, Benth.

CUPULIFERÆ, Tribe QUERCINEÆ.

*Q. (Lithocarpus) Maingayi*, Benth., sp. n., foliis integerrimis subtus pallidis, involucri fructiferis in spica secus rhachin erectam patentibus reflexive oblongo-turbinatis clausis velutino-tomentellis, lineis paucis vix prominentibus zonatis, vertice depressis demum circumscisse scutiferis, nuce inclusa fere ad apicem adnata, pericarpio crasso duro.

HAB. Penang; found about a mile from the top of the hill, *Maingay*.

*Arbor* procera, ramulis inflorescentiaque minute ferrugineo-tomentellis. *Folia* 8–10 poll. longa, 4–6 poll. lata, coriacea, breviter acuminate, basi cuneata, petiolo  $\frac{1}{2}$ –1-pollicari, subtus pallida at vix canescentia, venis primariis simplicibus parallelis subtus prominentibus ad utrumque latus costæ 15–20. *Flores* nobis desunt. *Pedunculus* fructifer 4–6-pollicaris, erectus. *Involucre* 3–4, matura subsequipollicaria poll. diametro, ima basi valde attenuata quasi crasse pedicellata, tomento minuto ferrugineo subvelutina, lateribus zonis 2–3 parum prominulis notatis, vertice subplano centro umbonato zonis 2–3 notato demum scutiformi circumscisse deciduo. *Nux* involucre fere ad apicem arcte adnata, pericarpio duro subsuberoso 2–2½ lin. crasso.

Evidently allied to the *Lithocarpus scutigera* of Oudemans, but with a differently shaped fruit, and if that is founded on the *Quercus costata* of Blume, the foliage is also quite distinct.—G. BENTHAM.



## PLATE 1315.

## QUERCUS BECCARIANA, Benth.

CUTLIVER, Tribe QUERCINEÆ.

*Q. (Lithocarpus) Beccariana, Benth., sp. n.*, foliis integerrimis subtus pallidis subcanescentibus, spicis erectis, masculis paniculatis, foemineis simplicibus, involucris foemineis secus rhachin solitariis sessilibus ovoideis v. fructiferis obovoideis lineis parum prominentibus zonatis glabris perfecte clausis, nuce inclusa fere ad apicem adnata, pericarpio duro crasso.

HAB. Borneo, Beccari, n. 3310.

Specimina nostra præter canescentiam minutissimam inflorescentiæ et paginæ inferioris foliorum glabra. *Folia* oblonga, breviter acuminata, 3-4 poll. longa, 1-1½ poll. lata, basi acuta, petiolo 5-6 lin. longo, coriacea, supra nitidula, venis primariis simplicibus parallelis in pagina inferiore prominulis ad utrumque latus costæ 6-8. *Spicæ* masculæ pollicares v. terminales longiores, in panicula terminali 6-8, foemineæ inferiores simplices, sub fructu 2-3-pollicares. *Involucra* sub anthesi 2-3 lin. longa, arcte sessilia, glabra, zonis prominulis 6-8 annulata. *Styli* 3, breves, crassi, ex apice prominuli, stigmatibus terminalibus. *Involucrum fructiferum* 2-2½ poll. longum, 1½ poll. diametro, vertice non depressum et prominenter umbonatum, quam in *Q. Maingayi* crassius, nucem arcte includens et ut videtur omnino indehiscens. *Nux* fere ad apicem adnata, pericarpio 2 lin. crasso duro.—G. BENTHAM.

Fig. 1. Male flower. 2. Female flower. 3. The same, longitudinal section showing the pistil. 4. Ripe fruit. 5. The same, longitudinal section.

## PLATE 1316.

PERSEA NANMU, Oliv.

LAURINÆ, § PERSEACEÆ.

*P. (Phoebe) Nanmu, Oliv., sp. nov.*, arbor procera; foliis e basi attenuatis oblongis, angustioribus, angulo-oblancoatisve obtusiusculis acuminatis supra glabris, infra medio glabro excepto appresse sericeo-pubescentibus, in corymbam terminali sericeo-pubescentibus.

fasciculos florum in pulvinos intumescens; bracteolæ in pulvinis minutæ, subulatæ; flores gracile breviter pedicellati. *Perianthium* ♂  $\frac{1}{2}$ – $\frac{3}{4}$  poll. longum, sepalis concavis petalisque erectis; ♀ magis campanulatum, masculo dimidio brevius, sepalis latioribus et petalis abbreviatis, staminodiis 5 subulatis. *Capsulæ* in rhachi brevi aggregatæ, 3-gono-globosæ,  $\frac{3}{4}$  poll. diametro, pallidæ, læves, valvis tenuiter coriaceis. *Semina* parva, orbicularia, valde compressa, testa irregulariter impresso-punctata.

This is certainly a most remarkable species of *Modecca*, if, indeed, it should not form a subgenus characterised by the habit and the curious entire large umbraculiform stigma, in which I see no trace of lobing. The female flowers I have not seen *in situ*, and cannot say whether they are seated on an elongated rhachis like the males; the capsules are certainly aggregated on a short rhachis, but the latter may be only a lower node of what was an elongate one. The prickles of the stem are unique in the genus; they are confined to the thickened angles, which are uniformly corky.—J. D. HOOKER.

Fig. 1. Vertical section of ♂ flower. 2. Petal. 3. Stamen. 4. Vertical section of ♀ flower.—All enlarged.

## PLATE 1318.

### STELLULARIA NIGRICANS, Benth.

SCROPHULARINEÆ, Tribe GERARDIÆ (BUCHNEREÆ).

*Stellularia*, Benth., gen. nov. *Calyx* tubulosus, 7–8-nervis, dentatus v. breviter 4-fidus. *Corollæ* tubus tenuis, rectus, limbus stellato-patens, subæqualiter 5-partitus, lobis undulatis vix levissime imbricatis (2 posticis interioribus?). *Stamina* 4, inclusa, didynama, filamentis brevibus; antheræ 1-loculares, dorso affixæ, rima longitudinali dehiscentes, muticæ. *Stylus* apice incrassatus stigmatosusque, indivisus; ovula in loculis numerosa. *Capsula* oblonga, corollæ tubo marcescente inclusa, septo contrarie compressa, loculicide dehiscent. *Semina* numerosa (angulata?), in speciminibus vix matura. *Herbæ* erectæ, siccitate nigricantes. *Folia* opposita, linearia. *Flores* in spica terminali sessiles, singuli bractea bracteolisque 2 stipati.

*S. nigrescens*, Benth. (*single species?*).

HAB. West tropical Africa, Angola Expedition, *Welwitsch*, n. 5838.

*Herba* erecta, rigidula, ut videtur annua et verisimiliter in radicibus semiparasitica, pilis brevibus conspersa, siccitate nigricans, ramis oppositis erectis. *Folia* subsessilia, majora  $1\frac{1}{2}$ -pollicaria, fere 2 lin. lata, ramealia minora et angustiora, omnia integerrima scabro-puberula. *Spicæ* supra foliorum par ultimum breviter pedunculatæ, densæ, cylin-

## PLATE 1320.

## LEPTOGONUM DOMINGENSE, Benth.

POLYGONACEÆ, Tribe TRIPLARIDÆ.

*L. domingense*, Benth. in Benth. et Hook. Gen. Pl. iii. 104, single species.

HAB. Island of Santo Domingo, near Agua, San Juan, on edges of savannahs, Schomburgk, n. 34 and 122.

*Frutex* arborescens v. arbor parva, ramulis novellis ferrugineo-villosulis, defoliatis reliquiarum ocrearum annulatis. *Folia* alterna, ad apices ramulorum conferta, vix petiolata, elliptico-oblonga, 2-3-pollicaria, acutiuscula v. obtusa, integerrima v. obscure sinuato-crenata, basi contracta, rigidula, pennivenia, venis primariis parallelis valde prominulis, supra scabriuscula, subtus rufescentia ad venas puberula. *Ocreæ* brevissimæ, interdum ad annulum parum prominentem reductæ. *Spicæ* tennes, in innovationibus brevibus ad apices ramulorum inter folia 2-5 pedunculo communi brevi affixæ, graciles, erecti v. nutantes, pilis sericeis ferrugineis vestitæ. *Flores* vix 2 lin. longi, sericeo-villosi, secus rhachin spicæ intra bracteolam brevem oblique cupulatam solitarii v. gemini. *Perianthium* anguste tubulosum, alte 6-fidum, lobis angustis, 3 majoribus exterioribus e bracteola exsertis, 3 alternis multo minoribus inclusis. *Stamina* 3, tubo inclusa, lobis minoribus opposita, filamentis brevibus. *Ovarium* globoso-3-gonum, 3-sulcum, loculo centrali parvo; stigmata 3, parva, erecta; ovulum ab apice funiculi erecti pendulum. *Fructus* ignotus.

This curious genus is in many respects allied to *Ruprechtia*, but the flowers are perfectly hermaphrodite, and the ovule suspended from an erect funicle is that of *Brunnichia*.—G. BENTHAM.

Fig. 1. Bracteole, enclosing the flower of which the three longer lobes protrude, and subtended by a small bract. 2. Bracteole further advanced, showing the enclosed flower. 3. Flower with a second bud or imperfect flower, the bracteole removed. 4. Flower opened out, showing the stamens and ovary. 5. Stamens. 6. Ovary. 7. The same, longitudinal section showing the ovule and funicle.

## PLATE 1321.

## OXYGONUM ALATUM, Burch.

POLYGONACEÆ, Tribe EUPOLYGONEÆ.

*P. alatum*, Burch. Trav. i. 548, annuum, papilloso-scabriusculum v. glabrum, foliis lanceolatis dentatis v. inciso-pinnatifidis, pedicellis 1-3-

nis bractea subduplo longioribus, perianthii fructiferi angulis membranaceo-alatis v. rarius medio cornutis.

HAB. South Africa; Griqualand, on or near the Sand river, a small affluent of the Orange or Gariep river, *Burchell*, *Zeyher*; and on the Orange river, probably in the same neighbourhood, *Barber*.

*Caules* basi ramosi, tennes at rigidi, ascendentes,  $\frac{1}{2}$ –1 pedales. *Folia* majora latiuscule lanceolata,  $1\frac{1}{2}$ –2 pollicaria, irregulariter inciso-pinnatifida, in petiolum contracta, alia multo minora, angusta, dentata v. hinc inde integerrima. *Ocreæ* laxè turbinatæ, membranaceo-scariosæ, truncatæ, margine setis nonnullis longiusculis ciliatæ v. nudæ. *Flores* inferiores sæpe axillares, superiores in racemum longum interruptum apyllum dispositi, pedicellis intra bracteas ocreiformes dissitas sæpius geminis filiformibus 2–2 $\frac{1}{2}$  lin. longis; masculi in speciminibus nostris pauci, perianthio fide *Burchellii* 4-fido, in floribus examinatis ut in hermaphroditis 5-fido, omnes parvi, perianthii laciniis vix linea longioribus. *Perianthii fructiferi* limbus clausus marcescens, tubus auctus 3–4 lin. longus, angulis 3 nunc in alam scariosam  $1\frac{1}{2}$ –2 lin. latam expansus, nunc rarius exalatus, medio v. supra medium dente v. cornu patente instructus.

*Meissner*, in *De Candolle's Prodrômus*, xiv. 38, 39, distinguished two genera, *Oxygonum* and *Ceratogonum*, placed in two different tribes, having misunderstood *Burchell's* expression (in characterising *Oxygonum*) 'fructus 3-alatus,' which applied to the whole fruit, not to the enclosed achæmium. The other character, the angles of the fruiting perianth winged or toothed only, falls to the ground, as both forms are sometimes seen on the same specimen in *O. alatum*; the form represented in the plate, fig. 2, is very rare. When the tooth or horn is prominent, it is usually below the middle, and sometimes it is continued both above and below into a narrow wing.—G. BENTHAM.

Fig. 1. Hermaphrodite flower. 2. Fruit with toothed angles. 3. Fruit with winged angles. The perianth-limb remains long attached, as in the winged fruit represented still attached to the raceme.

PLATE 1322.

DIMORPHOCHLAMYS MANNII, Hook. f.

CUCURBITACEÆ, Tribe CUCUMERINÆ.

*D. Mannii*, Hook. f. in *Benth. et Hook. Gen. Pl.* i. 827; *Oliv. Fl. Trop. Afr.* ii. 550.

HAB. Western tropical Africa; Fernando Po, *Vogel*, *Mann*; Old Calabar river and Amba Bay, *Mann*, *Rev. W. O. Thomson*.

**Dioica.** *Caulis* gracilis, scandens, 8-15-pedalis, angulatus, firmus. *Folia* 3-5 poll. longa, petiolata, rigide coriacea, late ovato- v. rotundato-cordata, acuminata, denticulata, utrinque scabrida, subtus reticulatim venosa, sinu basilari aperta; petiolo  $\frac{1}{2}$ - $\frac{3}{4}$ -pollicari. *Cirrhi* simplices v. 2-fidi. *Flores* dimorphi; ♂ ad axillas fasciculati, pedicello (calycisque tubo) in alam obovato-cuneiformem membranaceam reticulatim venosam dilatato; bracteolæ parvæ, recurvæ. *Calyx* 5-lobus, lobis 5 ovatis, acutis, dorso breviter alatis. *Corolla* campanulata, pollicaris; segmenta 5, ovato-oblonga, acuta, extus furfuracea. *Filamenta* 3, libera, antheræ connatæ v. demum liberæ, una 1-locularis, duo 2-loculares, loculis linearibus conduplicatis. *Fl.* ♀ solitarii, parvi, pedicellis non alatis. *Calycis* limbus supra ovarium breviter productus; segmenta 5, linearia, patentia, persistentia, demum decrescentia et fructum coronantia. *Corolla* 5-partita, segmentis oblongis extus furfuraceis. *Staminodia* 0. *Ovarium* ellipsoideum, furfuraceum; stylus columnaris, stigmatibus 3 peltatis globosis; placentæ 3, multiovulatæ. *Bacca* globosa, 2-3 poll. diam., calycis segmentis elongatis rigidis loriformibus pericarpio duro granulato appressis coronata, polysperma. *Semina* magna, pollicaria, oblongo-quadrata, crassa, granulata, utrinque appendiculata et dentata, faucibus planiusculis sulco intramarginali quadrato insculptis, lateribus convexiusculis marginatis; cotyledones crassæ.—  
J. D. HOOKER.

A very singular genus, allied to *Cephalandra*, remarkable for the winged pedicel and calyx of the male flower, and the more singular calyx of the female, which enlarges greatly after flowering, and is persistent in the ripe fruit, a character probably unique in the order.

Fig. 1. Calyx of ♂. 2. Stamens. 3. ♀ flower. 4. Fruit. 5. Seeds.—Figs. 1 and 2 enlarged.

## PLATE 1323.

### ABROPHYLLUM ORNANS, Hook. f.

SAXIFRAGEÆ, Tribe ESCALLONIEÆ.

*A. ornans*, Hook. f. in Benth. et Hook. Gen. Plant. i. 647; Benth. Fl. Austral. ii. 437.—*Brachynema ornans*, F. Muell. Fragmenta, iii. 90.

HAB. New South Wales; banks of the Grose river, Brown; Mount Tomah, Blue Mountains, A. and B. Cunningham; Richmond river, near Ballena, C. Moore.

*Frutex* ramulis gracilibus petiolis nervis subtus cymisque pube appresse hirsutulis. *Folia* 6-12-pollicaria, membranacea, gracile petiolata, elliptico-lanceolata, acuminata, basi attenuata, remote dentata, dentibus apiculatis, supra et subtus nervis exceptis glaberrima, petiolo

2-pollicari; stipulæ 0. *Cymæ* pedunculatæ, irregulariter ramosæ.  *Flores* pedicellati,  $\frac{1}{2}$  poll. diam. *Sepala* 4-6, decidua. *Petala* 4-6, lata, patula, decidua, æstivatione valvata. *Stamina* 4-6, marginæ loci inconspicui inserta, filamentis brevissimis; antheræ magnæ, tala subæquantes. *Ovarium* basi lata sessile, ovoideo-oblongum, 5-loculare; stigma sessile, 4-5-lobum; ovula in loculis numerosa. *Fructus* pisiformis. *Semina* minuta, testa punctata.

As stated by Bentham in the 'Flora Australiensis,' I had described this genus under the above name for the 'Genera Plantarum' (and with the specific name of *Cunninghamii*) before the arrival at Kew of the third volume of Mueller's 'Fragmenta,' wherein I found it described (all but the fruit) as *Brachynema ornans*; and the name *Brachynema* being preoccupied, I was compelled to adopt my own generic name, and my friend Mueller's specific one. It is interesting to find that this curious plant had not escaped Brown's keen observation; specimens of it are contained in his Herbarium, collected seventy years ago, during half a century of which they, together with the rest of his magnificent collections, were jealously closed to botanists. The fruit, which in Cunningham's specimens appears to be oblong, is in Brown's distinctly globose.—J. D. HOOKER.

Fig. 1. Flower. 2. Stamens. 3. Calyx and ovary. 4. Berry. 5. Transverse section of berry.—All but fig. 4 enlarged.

## PLATE 1324.

### PHACELLARIA RIGIDULA, Benth.

SANTALACEÆ, Tribu OSTRIDEE.

*P. rigidula*, Benth. in Benth. et Hook. Gen. Pl. iii. 229, caulibus teretibus rigidulis ramosis.

HAB. East India; Mergui, Griffith.

*Fruticulus* in *Lorantho* quodam parasiticus, caulibus dense fasciculatis teretibus ramosis rigidulis 3-5-pollicaribus,  $\frac{1}{2}$  lin. v. majoribus vix lin. crassis glabris aphyllis. *Squamellæ* ad nodos alternæ, minutæ entiformes v. vix prominentes. *Flores* ad nodos secus ramos sparsi, solitarii v. fasciculati, sessiles, masculi subglobosi  $\frac{1}{2}$  lin. diametro, eminei ovoidei, demum lineam longi. *Perianthii* tubus in flore masculo solidus, in foemineo ovario adnatus, lobi 4 v. 5, usque ad discum adnati, breves, crassi, æstivatione valvati. *Stamina* 4 v. 5, basi loborum affixa iisque breviora, filamentis brevissimis, crassis; antheræ terminales, loculis distinctis divaricatis longitudinaliter dehiscentibus. *Fructus* subplanus, inter stamina v. inter lobos perianthii angulatus.

VOL. IV. THIRD SERIES.

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*Ovarium* inferum, 1-loculare; stylus brevissimus, crassiusculus, stigmatem integro discoideo; placenta in centro loculi brevis, erecta, ovulis 3 ab apice pendulis. *Fructus* junior ovoideo-oblongus; maturus adhuc non visus.

This curious parasite, with the habit of some of the leafless *Ficus*, has nevertheless all the characters of a *Santalacea*, where its nearest affinity appears to be with the Australian *Leptomeria*.—G. BENTHAM.

Fig. 1. Male flower, seen from above. 2. One of the lobes with the stamen at its base. 3. Female flower. 4. The same, longitudinal section showing the ovary-cell and placenta, with two of the ovules.

## PLATE 1325.

### ARAGOA LYCOPODIOIDES, Benth.

SCROPHULARIACEÆ, Tribe DIGITALEÆ.

*A. lycopodioides*, Benth. sp. nov. ramulis lanatis, foliis glabris lobulatis trigonis carinatisve acutiusculis incurvo-imbricatis, calycis lobis ovato-ellipticis margine apicem versus lanatis, corollæ fauce villosa.

HAB. New Granada, *Purdie*! Ocaña, *Schlim*! *Kalbreyer*!

*Frutex* pyramidalis, 3-6-pedalis, ramosissimus, ramulis teretibus confertis lanatis. *Folia* 1-1½ lin. longa multifariam imbricata. *Flores* breviter pedicellati v. subsessiles ⅓-½ poll. diam. *Calyx* foliolis concavis coriaceis dorso glabris. *Corolla* rotata, alba, lobis obovatis obtusis, margine glabris. *Stamina* exserta. *Capsula* ovoidea calycem æquans v. superans stylo filiformi persistente coronata.

Differs from *A. abietina* in the lanate branches, much shorter leaves and villous throat of corolla; from *A. cupressina* in the narrow trigonous or keeled leaves, which are not closely appressed as in that species.—D. OLIVER.

Fig. 1. Expanded flower. 2. Stamen. 3. Section of calyx, showing pistil. 4. Calyx and capsule. 5. Portion of ultimate twig.

# ICONES PLANTARUM.

PLATE 1326.

**LANESSANIA TURBINATA, Baill.**

URTICACEÆ, Tribe ARTOCARPEÆ.

**L. turbinata, Baill. *Adans.* xi. 298.**

**HAB.** North Brasil, in the Capoeiras at Barra do Rio Negro, where it is known under the name of *Mururé*, *Spruce*, n. 1825.

*Arbor* 20-pedalis, ramulis petiolis venis paginæ inferioris foliorum receptaculisque tomento brevi rufescentibus, succo lacteo sordido. *Folia* alterna, breviter petiolata, elliptico-oblonga, breviter et anguste acuminata, basi rotundata, coriacea, supra glabra læviuscula pennivenia, venis primariis et rete venularum subtus prominentibus, 3-5 poll. longa, 2-2½ poll. lata; stipulæ parvæ, caducæ. *Receptacula* ad nodos inferiores ramuli hornotini in axillis solitaria, pedicello petiolum vix excedente mox recurvo fulta, anguste turbinata v. obpyramidata, 5-6 lin. longa, carnosula, in vivo basi fulva superne pallida. *Bractea* circa marginem receptaculi fere tuberculiformes, obscure 2-3 seriatæ. *Flores* ♂ numerosi, apicem explanatum receptaculi obtegentes, arcte conferti, basi subconnati. *Perianthium* tubulosum, carnosulum, brevissime obtuseque 3-4-fidum. *Stamina* 2, rarius 3, filamentis inclusis rectis crassis; antheræ parvæ, loculis adnatis. *Ovarii* rudimentum 0 v. minute subulatum. *Flos* ♀ in centro receptaculi unicus. *Perianthium* a receptaculo carnosulo haud distinctum, canalem centralem efficiens. *Ovarium* in fundo receptaculi inferum; stylus intra canalem liber, apice exsertus, ramis stigmatosis elongatis; ovulum ex apice loculi pendulum.

The fruit of this species is unknown, but specimens of what would appear from the foliage and inflorescence to be a nearly allied congener



have small globular succulent fruits, not yet ripe. They were gathered by Spruce in the Managuiry-gapo, at the mouth of the Solimoes, from a shrub known to the natives by the name of *Caimbé*, and distributed with the n. 1635. Being passed flower, they cannot be named or properly described.—G. BENTHAM.

Fig. 1. Fleishy receptacle, vertical section. 2. A male flower, cut open.

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PLATE 1327.

SCYPHOSYCE MANNIANA, Baill.

URTICACEÆ, Tribe ARTOCARPEÆ.

*S. Manniana*, Baill. *Adans.* xi. 293.

HAB. West tropical Africa, Sierra del Crystal, *G. Mann*, n. 1727.

*Frutex* humilis, caule simplici 6-9-pollicari tomento brevi fusco vestito. *Folia* alterna, breviter petiolata, elliptico-oblonga, acuminata, infra medium angustiora, membranacea v. chartacea, integerrima v. obscure denticulata, pennivenia, glabra v. subtus ad venas parce scabro-puberula, 3-5 poll. longa. *Stipulae* liberae angustae. *Receptacula* in axillis superioribus solitaria, pedicello petiolum breviter superante fulta, tubuloso-cupulata,  $1\frac{1}{2}$  lin. longa, basi florifera carnosula, parte superiore v. limbo cupulato membranacea, margine breviter 4-5-loba. *Flores* ♂ in fundo receptaculi pluri-seriati, apice exserti. *Perianthium* anguste tubulosum, obtuse minuteque 2-4-dentatum. *Stamen* 1, filamentum recto; anthera oblonga, erecta, exserta. *Ovarii* rudimentum 0. *Flos* ♀ in centro receptaculi unicus. *Perianthium* e segmentis 2 distinctis latis uno alterum pistillumque involvente, perianthio masculo æquilongum. *Ovarium* superum, sessile; stylus subulatus, primum centralis, demum fere lateralis, ramis stigmatosis exsertis subfiliformibus; ovulum apice oblique affixum, pendulum. *Fructus* junior ovoideo-globosus, nitidus, receptaculi limbo deciduo denudatus, reliquiis florum masculorum cinctus.

This interesting plant, allied in some respects to *Bosquiea* of Thouars, is described on the collector's label as herbaceous, probably from its small stature; for the stem, though simple and often not even six inches high above the rooting base, appears certainly perennial and woody in the lower portion.—G. BENTHAM.

Fig. 1. Head of flowers, vertical section, showing the fleshy base of the receptacle and several male flowers with the central female one, the two perianth segments opened out and partially cut away to show the ovary and style. 2a. Male flower. 2b. Stamen.

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PLATE 1328.

**BRUNNICHIA AFRICANA, Welw.**

POLYGONACEÆ, Tribe COCCOLOBEÆ.

**B. africana**, *Welwitsch in Trans. Linn. Soc. xxvii.* 61, scandens, ramulis striatis puberulis, foliis ellipticis apiculatis basi cuneatis subrotundatisve petiolatis, cirrhis axillaribus apice bifidis, floribus fasciculatis in racemis simplicibus terminalibus dispositis, pedicellis plano-compressis fructiferis accrescentibus bialatis alis subæquilatis fere ad basin pedicelli decurrentibus.

HAB. Golungo Alto, Angola, *Dr. Welwitsch!*

*Frutex* gracilis, ramulis patentibus, late scandens. *Folia*  $2\frac{1}{2}$ – $3\frac{1}{2}$  poll. longa,  $1\frac{1}{2}$ –2 poll. lata, membranacea; petiolus  $\frac{1}{4}$ – $\frac{1}{2}$  poll. longus. *Cirrhi* graciles folio longiores. *Racemi*  $\frac{1}{4}$ – $\frac{1}{2}$  ped. longi, fructiferi pedales, glanduloso-puberuli; bractæ 2–5-floræ. *Fructus* ovoidens costulatus perianthii lobis persistentibus coronatus; pedicelli fructiferi 2–3 poll. longi; alæ  $1\frac{1}{2}$  lin. latæ.

Fully described by Dr. Welwitsch (*l.c.*). 'Differs from *B. cirrhosa* in the form of the leaves, and more especially in the long winged pedicel, the wings nearly equal on each side, not confined to one side or nearly so, as in *B. cirrhosa*.—D. OLIVER.

Fig. 1. Flower. 2. Same laid open and enlarged. 3. Stamens. 4. Fruit and alate pedicel.

PLATE 1329.

**ROSA ECÆ, Aitchison.**

ROSACEÆ, § ROSEÆ.

**Rosa Ecæ**, *Aitchison in Journ. Linn. Soc. Bot. xviii.* 54, humilis aculeatissima, aculeis homomorphis rectis rigidis patentibus basi plus minus dilatatis, foliis parvulis 5–7(–9)-foliolatis parce glandulosis, floribus aureis solitariis pedunculatis, fructu globoso glabro nitido calycis laciniis reflexis coronato.

HAB. A common and characteristic shrub from Habibkalla to Alikhél, Afghanistan, 'forming with *Amygdalus eburnea* the greater part of the scrub on the stony ridges of the Hariáb district.'

*Frutex* erectus 3–4-pedalis, ramosus; ramis gracilibus glabris junioribus ruberrimis; aculeis in ramis floriferis confertis  $\frac{1}{3}$ – $\frac{1}{2}$  poll. longis. *Folia*  $\frac{1}{2}$ –1 poll. longa; foliola obovata v. elliptica serrata glabrata v. subtus parce glandulosa; stipulæ parvæ. *Flores*  $\frac{3}{4}$ –1 poll.

diam.; pedunculi  $\frac{1}{4}$ – $\frac{2}{3}$  poll. longi, glabrati; calycis segmenta oblongo-lanceolata indivisa vel apicem versus denticulata intus plus minus albidio-sericea. *Fructus*  $\frac{1}{4}$ – $\frac{1}{3}$  poll. diametro; achænia glabrata, stylis persistentibus villosissimis.

The characters of this very interesting yellow Rose are chiefly taken from Dr. Aitchison's paper cited above, with the specimens before me.—D. OLIVER.

## PLATE 1330.

### PENIANTHUS LONGIFOLIUS, Miers, fl. 3.

#### MENISPERMACEÆ.

*P. longifolius*, Miers in *Ann. Nat. Hist.* ser. iii. xiii. 124; *Contrib. Bot.* iii. 372, t. 149. Frutex glaber; foliis obovato-ellipticis obtusiuscule acuminatis basi sæpe plus minus cuneatis longe petiolatis, floribus ♂ in glomerulis subglobosis multifloris sessilibus v. breviter pedunculatis confertis, perianthii segmentis liberis 6 v. 5 obovatis biseriatis, exterioribus paullo brevioribus, staminibus liberis 6 v. 5, filamentis leviter superne dilatatis, antheris bilocularibus longitudinaliter dehiscentibus perianthio subbrevioribus.

HAB. Camaroons Mountains, 500 feet. (Fl. ♀, Fernando Po). *Gustav Mann.*

*Folia* tenniter coriacea 5–7 poll. longa,  $2\frac{1}{2}$ – $3\frac{1}{2}$  poll. lata, petiolus ad 2 poll. longus sulcatus supra canaliculatus, apice incrassatus. *Glomeruli floriferi*  $\frac{1}{4}$ – $\frac{1}{3}$  poll. diam.

The female flowers are described by Mr. Miers (*Contrib. l.c.*), and in 'Flora of Tropical Africa' i. 50. The specimens now described, bearing staminate flowers, had been sorted away in *Artocarpæ*, and so were not at hand when I described the plant in 1868.—D. OLIVER.

Fig. 1. Detached flower. 2. Stamen and opposed inner perianth-segment.

## PLATE 1331.

### CEPHALANTHUS NATALENSIS, Oliv.

#### RUBIACEÆ, Tribe NAUCLEÆÆ.

*C. natalensis*, Oliver, *sp. n.*, ramosissimus, ramulis ultimis puberulis, foliis ovatis v. ovato-ellipticis breviter acuminatis acutis v. obtusiusculis glabris v. costa subtus petioloque puberulis, capitulis terminalibus.

breviter pedunculatis, calycis limbo supra ovarium producto obtuse dentato, corolla tubulosa superne infundibuliforme dilatata.

HAB. Natal, Gerrard (1495); Transvaal, Dr. Atherstone.

*Folia*  $\frac{1}{2}$ – $1\frac{1}{2}$  poll. longa, tenuiter coriacea, rete venularum inconspicuo; petiolus 1 lin. longus. *Capitula* globosa florifera 1 poll. diam.; pedunculus  $\frac{1}{2}$ – $\frac{3}{4}$  poll. longus, pubescens. *Corolla*  $\frac{1}{2}$  poll. longa, tubo inferne gracili fere glabro, ore sæpe leviter obliquo. *Antheræ* vix exsertæ lineari-oblongæ mucronulatæ. *Stylus* longiuscule exsertus, apice clavatus.

The fruit-heads are said to become sufficiently succulent to be edible.—D. OLIVER.

Fig. 1. Detached flower. 2. Longitudinal section of ovary and calyx-tube.

PLATE 1332.

CARMICHAELIA KIRKII.

LEGUMINOSÆ, Tribe GALEGEÆ.

*C. Kirkii*, Hook. f. n. sp.; sparse pilosa, ramis gracillimis cylindraceis sulcatis, foliis 3–5-foliolatis, foliolis orbiculari-obcordatis, racemis 3–5-floris, floribus  $\frac{1}{2}$  poll. longis, longe pedicellatis, legumine ellipsoideo turgido longe rostrato.

HAB. NEW ZEALAND: Otago, prov., in the Cardrona Valley, T. Kirk; Otapopo, M. Petrie.

Laxe ramosa, ramis ramulisque sparsis divaricatis, ramulis petiolisque tenuiter sericeis v. pilosulis. *Folia* sparsa, petiolo cum rachi  $\frac{1}{4}$ –1 poll. longo, foliolis  $\frac{1}{4}$ – $\frac{1}{2}$  poll. longis glaberrimis sinu acuto lobis rotundatis. *Pedunculi* foliis æquilongi v. breviores gracillimis floribus pedicellatis, bracteolis ciliatis. *Calyx* campanulatus, glabratus, dentibus intus sericeis acutis. *Vexillum* orbiculare, 2-lobum; carina falcata alis spathulatis brevior. *Ovarium* glaberrimum. *Legumen*  $\frac{1}{2}$  poll. longum, rostro valido recto pungente 2-spermo, valvis obscure reticulatis, repleto crasso lato lævi.

This differs from all the described species of *Carmichaelia* in the very slender habit, cylindric lax spreading almost filiform branches, large flowers and long beaked pod. It forms the tenth species of a genus long supposed to be peculiar to New Zealand, but of which one species has been found in Lord Howe's Island, the vegetation of which, as indicated by its position, shows the characters of those of Australia and New Zealand. I have named it after Mr. Thomas Kirk, F.L.S., of

Wellington, New Zealand, its discoverer, who, with Mr. Cheeseman, of Auckland, have added more to our knowledge of the New Zealand Flora than any botanists of late years.—J. D. HOOKER.

Fig. 1. Flower. 2. Wing. 3. Ovary. 4. Seed. 5 and 6. Embryo. All *enlarged*.

## PLATE 1333.

### ERYTHROSPERMUM POLYANDRUM, *Oliv.*

#### BIXINEÆ.

*E. polyandrum*, *Oliver, sp. n.*, glaberrimum, foliis oblongis v. ovali-oblongis breviter acuminatis basi obtusis subintegerrimis petiolatis, floribus polygamis racemosis racemis terminalibus v. in axillis superioribus approximatis, pedicellis solitariis geminis ternisve basi bracteolatis, staminibus circ. 15 uniseriatis, ovario oblongo-ovoideo superne angustato, stigmate 4-fido.

HAB. Samoa, *Rev. T. Powell*.

*Arbor* ut videtur glaberrima, ramulis teretibus lævibusque. *Folia* tenuiter coriacea 6–9 poll. longa, 2–3½ poll. lata; petioli ½–¾ poll. longi. *Racemi* 6 poll. longi pedunculati; pedicelli ½–¾ poll. longi. *Flores* ½ poll. lati; sepala rotundata v. obovato-rotundata concava imbricata petalis paullo breviora; petala obovata inappendiculata. Stamina libera 15–16 glabra, filamentis subulatis crassiusculis, antheris longitudinaliter dehiscentibus oblongis v. lanceolato-oblongis recurvis basi sagittatis, connectivo incrassato. *Ovarium* glabrum; ovula indefinita, placentæ 4.

We have young specimens of probably the same plant from Samoa, sent by Rev. Mr. Whitmee.—D. OLIVER.

Fig. 1. Bud. 2. Flower. 3. Stamens. 4. Pistil. 5. Transverse section of ovary.

## PLATE 1334.

### LANIUM MICROPHYLLUM, *Lindl.*

#### ORCHIDÆÆ, Tribe EPIDENDRÆÆ (*Stenoglossææ*).

*L. microphyllum*, *Lindl. MS.*, caulibus brevibus non incrassatis foliosis, foliis distichis angustis carnosis, racemo simplici.—*Epidendrum* (*Lanium*) *microphyllum*, *Lindl. in Hook. Journ. Bot.* iii. 85.

HAB. British Guiana, *Schomburgk*. Surinam, *Hostmann*, n. 626.

*Rhizoma* v. *caudex* reptans radicans, vaginis brevibus laxis obtectum. *Caules* absque inflorescentia 1-2-pollicares, carnosuli at non in pseudobulbas incrassati. *Folia* 4-8, alterna, disticha, in vaginis sessilia, recurvo-patentia, crassa, fere 3-quetra, acuta, semipollicaria. *Racemus* terminalis, simplex cum pedunculo 1-2½ poll. longus, tomento minuto pallescens. *Flores* subsecundi, parvuli, viridi-purpurascens, pedicellis perianthio brevioribus v. paullo longioribus, bractea brevior subtransversis. *Perianthii* segmenta ad 2½ lin. longa, patentia; sepalum posticum lineari-lanceolatum subincurvum, lateralia paullo latiora basi columnæ tubo breviter adnata; petala sepalis postico paullo angustiora. *Columna* brevis, marginibus membranaceis cum labelli basi in tubum connatis. *Labelli* lamina sepalis æquilonga, erecto-patens, late lanceolata, concava, acuta, indivisa, basi secus lineam centram 2-lamellata. *Antherarum* loculi septo transverso 2-locellati. *Pollinia* 4, in locellis antheræ segregata, inferiora longiuscule, superiora brevius, acuminata, apicibus visco perparco connatis.

This, and the species illustrated in the following plate, form a very distinct group of Orchideæ which Lindley had originally intended to establish as a genus, but which he finally (induced probably by the union of the base of the labellum with the column) entered as a section or subgenus of *Epidendrum*. The pollinary apparatus is, however, as observed by Focke, so totally different from that of *Epidendrum* that it was impossible to retain the two species in that genus without doing violence to its character. It is in fact very nearly allied to that of the *Liparideæ*, but upon the whole the genus seems best placed in our subtribe *Stenoglosseæ*.—G. BENTHAM.

Fig. 1. Flower, magnified. 2. Labellum and column (without the anther) seen from above. 3. Anther-case, showing the four locelli. 4. The two pollen-masses of one cell.

## PLATE 1335.

### LANIUM AVICULA, Lindl.

ORCHIDEE, Tribe EPIDENDREÆ (*Stenoglosseæ*).

*L. Avicula*, Lindl. MS., caulibus pseudobulbosis apice 2-foliatis, foliis in pseudobulbo sessilibus planis ovatis, panicula ramosa.—*Epidendrum* (*Lanium*) *Avicula*, Lindl. in Hook Journ. Bot. iii. 85.

HAB. Brasil, Organ Mountains, growing in dense tufts on the stems and branches of trees, *Gardner*, n. 625.

*Caules* in pseudobulbum ovoideo-globosum semipollicarem foliis 2 coronatum incrassati, basi squamis 1-2 latis brevibus vaginati.

*Folia sessilia ovata, patentia,  $\frac{1}{2}$ –1-pollicaria, plana, carnosula. Pedunculus inter folia terminalis, cum inflorescentia 3–4-pollicaris, in ramos paucos divisus, paniculam laxè pyramidatam formans. Flores iis *L. microphylli* similes nisi paullo majores pedicellis sublongioribus; bractæ minimæ. Perianthii segmenta et labellum omnino *L. microphylli*. Anthera eadem excepto septo loculos dividente obliquo nec transverso, et polliniorum acumina minus inæqualia, et (saltem in floribus examinatis) libera nec visco connexa.—G. BENTHAM.*

Fig. 1. Flower, magnified. 2. Anther-case with three of the pollen-masses still in it. 3. Two pollen-masses.

## PLATE 1336.

### THESPESIA DANIS, Oliv.

#### MALVACEÆ, Tribe HIBISCEÆ.

*T. Danis, Oliver, sp. nov.* — Frutex v. arbuscula, ramulis ultimis teretibus parce lepidotis, foliis rotundatis integris apice interdum apiculatis basi cordatis v. late truncatis, parce v. præcipue in petiolo lepidotis, pedunculis axillaribus 1–2 pollicaribus, calyce turbinato-campulato truncato lepidoto, bracteolis 3 ovato-lanceolatis patentibus, floribus  $1\frac{1}{2}$ –2 poll. diam., petalis obovato-cuneatis dorso medio lepidotis, ovario 8-loculari, fructu ut videtur baccato v. tarde dehiscente.

HAB. Ribe, Nyika country, East tropical Africa; also in the Galla country, where it is held as 'sacred,' and called 'Dānis.'—*Rev. T. Wakefield.*

*Folia  $2\frac{1}{2}$ –3 $\frac{1}{2}$  poll. lata, submembranacea; petiolus  $\frac{1}{2}$ –1 $\frac{1}{2}$  poll. longus. Bracteolæ  $\frac{3}{4}$ –1 poll. longæ. Fructus subglobosus  $\frac{3}{4}$ –1 poll. diam.*

To the same species, I take it, must be referred specimens sent home by Dr. Kirk and Hildebrandt (No. 1929) from the Zanzibar coast. Hildebrandt's specimens are remarkable from their large bracteoles, about 1 inch in length, but they seem to be variable in Mr. Wakefield's specimens. An allied plant, much more lepidote and with broad bracteoles, Dr. Kirk sent from the Somali coast, probably a variety of the same.—D. OLIVER.

Fig. 1. Calyx and bracteoles. 2. Anthers. 3. Stigma. 4. Transverse section of ovary.

PLATE 1337.

**MICRONYCHIA MADAGASCARIENSIS, Oliv.**

**ANACARDIACEÆ.**

**Micronychia**, Oliver, *gen. nov.*—Flores polygami. Calyx parvus 5-partitus. Petala 5 ovato-oblonga calyce multo longiora, æstivatione imbricata. Stamina (in fl. ♂) 5, petalis alterna, disco hypogyno exteriora. Ovarium glabrum lateraliter compressum, obliquum; stylo ovario æquilongo apice breviter trifido, stigmatibus obtusis; ovulum solitarium prope apicem cavitatis pendulum. Fruct. . . —*Arbor* v. *frutex*? ramulis ultimis ferrugineo-hirtis, foliis alternis simplicibus petiolatis exstipulatis; paniculis multifloris folio longioribus arcte deflexis ramulis lateralibus alternis patentibus. Flores pedicellati penduli.

**M. madagascariensis**, Oliv. *sp. n.* *Single species.*

**HAB.** Tanala, Madagascar, Langley Kitching.

*Folia* ovali- v. oblanceolato-oblonga obtusa v. obtusiuscule acuminata, coriacea, supra glabra subtus in costa et in venulis primariis prominentibus hirtella,  $1\frac{1}{2}$ –4 poll. longa,  $\frac{3}{4}$ – $1\frac{1}{2}$  poll. lata; petiolum hirtus  $\frac{1}{2}$ –1 poll. longus. Paniculæ sessiles ferrugineo-hirtæ, ramulis divaricatis bracteatis, bracteis linearibus appressis; pedicelli dependentes 1–2 lin. longi, bracteolis minutis. Flores  $\frac{1}{2}$  poll. longi. Calyx hirsutus. Petala (sicco rubiginosa) dorso minute pubescentia.—D. OLIVER.

Fig. 1. Flower. 2. Same, the petals removed. 3. Anthers. 4. Style and stigma. 5. Vertical section of ovary.

PLATE 1338.

**GAMBLEA CILIATA, C. B. Clarke.**

**ARALIACEÆ, Tribe HEDERÆ.**

**Gamblea**, C. B. Clarke in Hook. f. *Fl. Brit. Ind.* ii. 739.—Flores polygami, ebracteati. Calycis margo brevissimus. Petala 5, valvata. Stamina 5. Ovarium 3–5-loculare; styli 3–5 usque ad dimidiam partem coadunati. Fructus globosus, proventu glaber, 3–5-locularis. Semina haud compressa; albumen leviter ruminatum, fere ut in *Hedera*.—Arbor 30-pedalis, inermis. Folia digitata 5–3-(vel 1-) foliolata; stipulæ intrapetiolares; foliola oblanceolata (solitaria interdum cordata), acuminata, integra supra scabride pilosa, in marginibus argute setoso-ciliata; petioluli rubiginoso-villosi. Umbelluli in parvis paniculis dispositi; pedicelli puberuli haud articulati.



HIMALAYA, alt. 10-12,000 feet, on the ridge dividing Nepaul from Sikkim; from Tonglo to Jongri.

The flowering specimens of this tree which Sir J. D. Hooker collected in 1850 were communicated to Professor Decaisne; but he did not take them up, because without fruit the place of the tree in the Order could not be determined. Examples in fruit have been lately received from J. S. Gamble, Esq., of the Indian Forest Department, and the genus established thereon has been named after him. The tree is plentiful on the ridge dividing Nepaul from Sikkim, in the region of *Rhododendron Falconeri*, but has not yet been communicated from any other locality.—C. B. CLARKE.

Fig. 1. Flower, petals removed. 2. Petal. 3. Fruit. 4. Seed. 5. Vertical section of same.

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### PLATE 1339.

#### AMPHIDOKA GNAPHALODES, D.C.

COMPOSITÆ, Tribe GNAPHALIEÆ.

*A. gnaphalodes*, DC. Prodr. vi. 246; Harvey and Sonder, *Flora Capensis*, iii. 263.

HAB. Cape Colony, near Uitenhage, Ecklon; Port Elizabeth, Zeyher; Natal, J. M. Wood.

*Herba* facies Gnaphalii, decumbens lanata. *Folia* anguste lineari-spathulata appresse v. tenuiter lanata 1-nervia, sessilia subamplexicaulia, ad  $1\frac{1}{2}$  poll. longa. *Capitula*  $1\frac{1}{2}$ -2 lin. diam. in cymis parvis gracile pedunculatis disposita; involucri squamis interioribus stramineis albidisve obtusiusculis v. subacutis flores superantibus; receptaculum nudum. *Flores* ♀ graciles ore minute 3-dentati; ♂ tubulosi superne parum ampliati 5-dentati; pappi setæ ad 5 caducæ apice tantum barbellatæ. *Antheræ* basi minute papillose. *Achaenia* oblonga subteretia punctata.—D. OLIVER.

Fig. 1. Female flower. 2. Hermaphrodite floret. 3. Anthers. 4. Stigmas.

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### PLATE 1340.

#### PENTZIA PINNATIFIDA, Oliv.

COMPOSITÆ, Tribe ANTHEMIDEÆ.

*P. pinnatifida*, Oliver, sp. n.; caulibus simplicibus e basi lignosis ascendentibus longitudinaliter striatis laxè pilosis, foliis pinnatipartitis,

segmentis utrinque 1-3 anguste linearibus apice subulatim terminatis marginibus plus minus revolutis, corymbis terminalibus polycephalis, capitulis campanulatis pedunculatis, bracteis interioribus lineari-oblongis margine scariosis apice denticulatis basi incrassatis, achæniis longitudinaliter striatis pappo cupuliformi dentato coronatis.

HAB. Inanda, Natal, Mr. J. M. Wood.

*Caulis*  $\frac{3}{4}$ -1 $\frac{1}{2}$  ped., simplices, foliosi. *Folia* sursum gradatim minora alterna v. 2-3-approximata,  $\frac{3}{4}$ -1 poll. longa, segmentis angustis, primum pilosa. *Capitula*  $\frac{1}{2}$  poll. diametro, pedunculata, pedunculis inferioribus longioribus pilosulis tomentosive,  $\frac{1}{2}$ -1 poll. longis; bracteæ inferiores parvæ pinnatisectæ. *Involucrum* bracteis pauciserialis, arcte appressis; receptaculum nudum. *Corolla* parce glandulosa, limbo campanulato 5-fido.—D. OLIVER.

Fig. 1. Capitulum. 2. Inner scale of involucre. 3. Floret, with enlarged upper portion of ovary. 4. Style and stigmas.

## PLATE 1341.

### COURTOISIA CYPEROIDES, Nees.

CYPERACEÆ, Tribe SCIRPEÆ.

*C. cyperoides*, Nees in *Linnaea*, ix. 286; Boeckel. in *Linnaea*, xxxv. 434.

HAB. East India, in marshy wet places in the Peninsula and in Bengal.

*Caulis* cæspitiosi, 1-2-pedales, glabri, prope basin foliis 2-3 longis angustis flaccidis instructi. *Inflorescentia* terminalis, umbelliformis, radiis numerosis valde inæqualibus, exterioribus 2-3-pollicaribus umbellulam pleiocephalam ferentibus, intimis brevissimis 1-cephalis, intermediis pluribus. *Bracteæ* 3-4, exteriores sub umbella foliaciæ inæquales, longiores sæpe semipedales, sub umbellulis breves, sub capitulis brevissimæ. *Spiculæ* numerosæ, in capitulis globosis radia umbellæ v. umbellulæ terminantes sessiles, bracteolis parvis subtensæ, singulæ plano-compressæ, cum alis glumarum ovatæ v. demum orbiculares, 1 $\frac{1}{2}$  lin. diametro. *Glumæ* 2, naviculares, carina dorso latiuscule alata. *Flos* unicus hermaphroditus addito rarius altero parvo imperfecto. *Setæ* hypogynæ 0. *Stamina* 3. *Stylus* cum ovario continuus, basi haud incrassatus, deciduus, ramis stigmatosis 3 filiformibus. *Næ* glumis inclusa quibuscum decidua, oblongo-fusiformis, acute 3-quetra, basi apiceque acuta, erostris.—G. BENTHAM.

Fig. 1. Spikelet. 2. Flower. 3. Cross-section of the spikelet.

## PLATE 1342.

**ERIOSPORA PILOSA, Benth.**

CYPERACEÆ, Tribe SCLERIEÆ.

*E. pilosa*, Benth. MS.—*Trilepis pilosa*, Boeckel. in *Linnaea*, xxxix. 10.HAB. West tropical Africa. On high rocks where water stands during the rains at Nupe on the Niger, *Buller*, n. 1560.

*Rhizoma* longe repens, vaginis imbricatis foliorum vetustiorum dense obtectum. *Caules* erecti, 3-quetri, 1-2-pedales. *Folia* ad basin caulis conferta, caule breviora, angusta, acuminata, rigidula, secus caulem pauca, breviora, longe vaginata. *Panicula* terminalis, angusta, ramulis irregulariter fasciculatis, superioribus brevissimis, inferioribus in fasciculo sæpe numerosis tenuibus valde inæqualibus, uno alterove sæpe 1-2-pollicari. *Spicularum capitula* (seu spicæ spiculiformes) ovata v. oblonga, ad apicem cujusve ramuli paniculæ solitaria v. sæpius 2-4 conferta, sessilia, 2-3 lin. longa. *Spiculæ* in capitulo numerosæ, androgynæ, undique imbricatæ, minimæ. *Glumæ* paucæ, carinatæ, tenues, subdistichæ, infima vacua, secunda florem fœmineum, 1-2 superiores florem masculum foventes, v. interdum flores omnes masculi. *Stamina* in flore masculo 1-3. *Setæ* hypogynæ normales desunt, sed ovarium floris fœminei basi pilis longis flexuosis dense cinctum. *Ovarium* apice in stylum attenuatum ramis stigmatosis 3.

The very natural and well-defined genus *Eriospora*, proposed by Hochstetter, was well described by Achille Richard in his '*Flora Abyssinica*,' except that he considered the female flower and its subtending glume as a separate spikelet, whilst I always find it inserted at the base of the spikelet on the same axis as the two or three upper male flowers, thus clearly indicating its place among true *Sclerieæ*. Boeckeler associates the original Abyssinian species and the present one with the Brazilian *Fintelmannia* (under the name of *Trilepis*), which belongs to the *Cryptangiæ*, and describes in '*Flora*' 1879, 569, a third species (*E. Schweinfurthiana*), distinct from, but with the habit and main characters of the above two, as a *Curpha*, a genus with which it appears to me not to have the slightest affinity. Schimper's n. 1262, from Abyssinia, appears to be a fourth species, allied to, but distinct from, the original *E. abyssinica*.—G. BENTHAM.

Fig 1. Spikelet. 2. Outer glume. 3. Inner glume with a male flower. 4. Female flower.

PLATE 1343.

**CYATHOCHÆTE CLANDESTINA, Benth.**

CYPERACEÆ, Tribe RHYNCHOSPOREÆ.

*destina, Benth. Fl. Austral. vii. 351.*—*Carpha clandestina, ad. 231.*

West Australia, King George's Sound, *Brown, Oldham.*

teretes, erecti, usque ad 7-8 ped. alti. *Folia* ad basin caulis e  
stiche imbricatis erecta, pedalia v. longiore, rigida, superne 1  
vaginis 2-3-pollicaribus membrana lacera coronatis, pauca  
lem vagina longa lamina brevi. *Bracteæ* florales secus caulis  
uperiorem longe laxaque vaginatæ, lamina parva, superiores  
breviores brevius acuminatæ. *Spiculæ* intra quamque brac-  
tus 2, vix exsertæ v. una longius pedunculata, singulæ fere  
es, angustæ, vix compressæ, 2-floræ. *Glumæ* sæpius 4,  
res vacuæ, 2 interiores longiores latiores flores arcte invol-  
utorum superior hermaphroditus, inferior masculus v. sterilis.  
ogynæ 4, rigide, infra medium ciliato-subplumosæ. *Stamina*  
tis pollice glumas excedentibus, antheris linearibus pollicari-  
bus filiformis, longe exsertus, ramis stigmatosis 2 filiformibus.  
iga, styli basi indurata coronata, bene matura tamen adhuc  
J. BENTHAM.

bract opened out showing the spikelet. 2. Hermaphrodite flower.

PLATE 1344.

**RHYNCHOSPORA RUPPIOIDES, Benth.**

CYPERACEÆ, Tribe RHYNCHOSPOREÆ.

*rhynchospora) ruppoides, Benth. sp. nov.,* aquatica, canle  
cteisque submersis filiformibus, inflorescentia irregulariter  
m composita, spiculis singulis pedicellatis, setis hypogynis  
mis stigmatosis 2.

Ceylon, in ponds near Colombo, *Thwaites*; Paraguay, marshes  
aza, *Balansa*, n. 2550.

submersi fasciculatim ramosi, foliis a basi lineari-filiformi  
villaceis. *Inflorescentia* composita, irregulariter fasciculato-  
liformis, radiis umbelluliferis, umbellulis aliis ad fasciculam  
m longe capilliformium reductis aliis spiculas paucas longe  
as ferentibus. *Spiculæ* angustæ, acuminatæ, 4-6 lin. longæ,

1-floræ. *Glumæ* 3-4, rigidæ, ab extimo brevi ad intimum florentem gradatim auctæ. *Setæ* hypogynæ 6, subæquales, superne retrorsum barbatæ. *Stamina* 3. *Stylus* elongatus, basi incrassatus, ramis stigmatosis 2 papillosis. *Nux* late ovata, compressiuscula, styli basi persistente rostrata.

Although aquatic submerged species have been already described in most of the large widely spread Cyperaceous genera, none had been yet known in *Rhynchospora*, of which the present species has been received at once from Ceylon and from South America without my being enabled to detect the slightest differences between the specimens gathered in these two very distant stations.—G. BENTHAM.

Fig. 1. Glumes. 2. Young flower within the hypogynous setæ. 3. Flower further advanced, with the setæ developed and the anthers fallen away. 4. Fruit.

## PLATE 1345.

### ARTHROSTYLES APHYLLA, R. Br.

CYPERACEÆ, Tribe RHYNCHOSPOREÆ.

*A. aphylla*, R. Br. Prod. 229.—*Fimbristylis planiculmis*, Boeckl. in *Linnaea*, xxxviii. 391.

HAB. Tropical Australia, from Endeavour river, *Banks and Solander*, to Croker's island, *A. Cunningham*, and gathered by various collectors in intermediate stations.

*Caulis* e rhizomate brevi plures, cæspitosi, erecti, rigidi, 1-1½-pedales, complanati, aphylli, basi vagina pilosula brevi breviter acuminata stipati, vaginis caulium vetustiorum diu persistentibus dense imbricatis. *Spiculæ* in capitulo terminali depresso-globoso 3-4 lin. diametro numerosæ, sessiles, 1½-2 lin. longæ. *Bracteæ* exteriores involucrentes lanceolato-acuminatæ v. fere subulatæ appressæ, 1-2 capitulo æquilongæ interiores minores gradatim in glumas abeuntes. *Glumæ* cujusve spiculæ 5-7, intima oblongo-lanceolata, acuta, membranacea, obscure 3-5-nervis, florem hermaphroditum fovens, cæteræ gradatim breviores latiores omnes vacuæ v. ex Boeckelero una sub gluma fertili florem masculum fovens. *Setæ* hypogynæ 6. *Stamina* 6, quorum 3 exserta præcocia antheris caducissimis v. interdum deficientibus, 3 breviora inclusa. *Stylus* in ovario articulatus, crassiusculus, uti rami stigmatosi crassi recurvi undique dense pube nivea tomentosa obtectus. *Nux* ovoidea, obtusissima, erostris, albida, lævis v. sub lente minute reticulata.—G. BENTHAM.

Fig. 1. Spikelet. 2. Flowering glume. 3. Flower. 4. Nut with the style naturally detached at maturity.

PLATE 1346.

**ACTINOSCHÆNUS FILIFORMIS, Benth.**

CYPERACEÆ, Tribe RHYNCHOSPOREÆ.

*filiformis*, Benth. MS. *Arthrostylis filiformis*, Thwaites, Enum. *yl.* 352.

B. Ceylon, Thwaites, Beckett.

Plures e rhizomate brevi, plures, cæspitosi, erecti, rigide filiformis, stri, 1-3-pedales, aphylli, basi vagina glabra breviter acuminata. *Spiculæ* tenues, in capitulo terminali globoso numerosæ, es, undique radiantes, exteriores reflexæ 2-2½ lin. longæ. *Bracteæ* exteriores paucæ, lineari-subulatæ, sub spiculis fere occultæ. *æ* cujusve spiculæ 4-6, intima v. rarius 2 intimæ florem herma- itum foventes, breviter subulato-acuminatæ, acumine sæpe recurvo, iores vacuæ gradatim breviores. *Setæ* hypogynæ 0. *Stamina* 3, entis sub anthesi brevibus. *Stylus* in ovario articulatus e basi ilboso-incrassata filiformis, glaber, ramis stigmatosis 3 rarius 2 ar filiformibus glabrisque. *Nux* ovoideo-globosa, obtuse sub-3- a, albida, obscure papillosa, interdum styli basi diu coronata, ra tamen nuda.

the MS. prepared for the forthcoming part of our 'Genera Plan- a' I have proposed the genus *Actinoschænus* for three plants rto described as species of *Arthrostyles*, and from which Boeckeler ken his character of that genus. They differ however from Brown's (described by Boeckeler as a *Fimbristylis*) in the shape of the ilum, in the few narrow outer bracts not forming a conspicuous are, in the stamens 3 only instead of 6, and in the slender gla- style. The three species of *Actinoschænus* closely resemble each , but come from such different countries that they can scarcely be d as varieties without further evidence. They are: 1. *A. Thouarsii*, a. (*Arthrostyles Thouarsii*, Kunth, Enum. Pl. ii. 284), from Mada- ar; 2. *A. filiformis*, Benth., as above, from Ceylon; and 3. *A. chi-* s (*Arthrostyles chinensis*, Benth. Fl. Hongk. 398), from Hong- g.—G. BENTHAM.

1. Spikelet. 2. Flower. 3. Pistil. 4. Nut with the base of the style not len off.

PLATE 1347.

**PTEROSCLERIA LONGIFOLIA, Griseb.**

CYPERACEÆ, Tribe CRYPTANGIÆ.

*longifolia*, Griseb. Fl. Brit. W. Ind. 579.

B. Trinidad, Herb. Hook. North Brasil, in marshy ground, Igarapé , near Santarem, Spruce, n. 648.

*Caules* erecti, simplices, 3-quetri, 1-2-pedales, uti tota planta glabri. *Folia* inferiora caulem sæpe superantia, superiora pauca diassita, 3-6-pollicaria, breviter vaginata, omnia angusta, erecta, acuta, rigidula, subter prominenter venosa. *Spicularum capitulum* terminale, semipollicem diametro, additis haud raro 1-3 inferioribus paullo minoribus ad axillas foliorum subsessilibus. *Spiculæ* parvæ, in quoque capitulo sæpius numerosæ, omnes sessiles sed irregulariter fasciculatæ, foemineæ in quoque fasciculo terminalis, masculis pluribus lateralibus, sed interdum foemineæ adest infra masculas (an ad fasciculum distinctum pertinens?). *Bracteæ* foliaceæ sub capitulo terminali 2 v. 3, patentes, inæquales longiore 1-3-pollicari, interiores concavæ, carina in alam denticulatam sæpius dilatata, recurvo-acuminata, acumine nonnullarum spiculas parum superante, sæpius tamen brevissimo. *Spiculæ* ♂ 2-3-floræ, glumis acutis carinatis exalatis, 1 rarius 2 exterioribus vacuis. *Stamina* 1-2. *Spiculæ* ♀ 1-floræ, glumis sæpius 3. *Setæ hypogynæ* 0. *Stylus* filiformis, ramis stigmatosis 3. *Nux* 3-costata, erostris, disco hypogyno parum prominulo.

The genus *Pteroscleria* now comprises three species, differing but little from each other except in stature and length of leaves. The original *P. guianensis*, Nees, only known from Parker's specimens from British Guiana, has the leaves from  $\frac{1}{2}$ - $\frac{3}{4}$  of a foot (not of an inch as stated by Nees, evidently through a clerical error). The third species, *P. capitata*, Benth., is the *Scleria capitata*, Willd., described by Boeckeler in *Linnaea*, xxxviii. 435 as a *Diplacrum*, in which the leaves are only 2 or 3 inches long and often obtusæ, and the heads of spikelets small. Besides the original specimen from Cumana which I only know from descriptions, I should refer to it Spruce's n. 3763 from the inundated sandy banks of the Guiana river.—G. BENTHAM.

Fig. 1. Female spikelet. 2. Male spikelet with the subtending bract. 3. Bract. 4. Pistil.

## PLATE 1348.

### TRIANOPTILES CAPENSIS, Fenzl.

CYPERACEÆ, Tribe RHYNCHOSPOREÆ.

*T. capensis*, Fenzl in Endl. Gen. Pl. 113.—*Ecklonia capensis*, Steud. in Flora 1829, 138; Boeckel. in Linnaea, xxxviii. 229.

HAB. South Africa, Table Mountain, near Cape Town, Ecklon, Harvey.

*Caules* cæspitiosi, 3-4-pollicares. *Folia* ad basin caulis graminea, caulem æquantia v. breviora. *Spiculæ* plures, sessiles, fasciculatæ, in

spicam angustam breviter oblongam terminalem densam v. laxam rarius ultra semipollicarem confertæ, sæpius 2-floræ. *Bractæ* inferiores 1-3, foliaceæ, spicam sæpius superantes, interiores parvæ. *Glumæ* 4-5, imbricatæ, quarum 1-2 inferiores breviores vacuæ, et interdum summa parva vacua. *Flos* uterque hermaphroditus, inferior tamen sæpius sterilis. *Squamæ hypogynæ* 3, angustæ, complanatæ, basi plumosociliatæ, superne glabræ, 3-fidæ, lobis linearibus erectis medio lateralibus longiore. *Stamina* 3. *Stylus* basi incrassatus, pubescens, persistens, superne glaber, filiformis, deciduus, ramis stigmatosis 3. *Nux* obovoidea, triquetra, styli basi persistentis rostrata.

Steudel's original name of *Ecklonia* was changed by Fenzl into *Trianoptiles*, as having been preoccupied in Algæ.—G. BENTHAM.

Fig. 1. Spikelet. 2. Flower. 3. Hypogynous scale. 4. Nut with the style not yet fallen off.

PLATE 1349.

A. *VERNONIA STENOCEPHALA*, Oliv.

B. *VERNONIA NYASSÆ*, Oliv.

COMPOSITÆ, Tribe VERNONIÆ.

*V. stenocephala*, Oliver, *sp. nov.* Frutex ramulis gracilibus striatis puberulo-tomentellis, foliis anguste linearibus subsessilibus adscendentibus minute canescenti-hirtellis deinde supra glabratis marginibus arcte revolutis, capitulis 5-7-floris ovalibus cymosis breviter pedunculatis v. subsessilibus in paniculis oblongis terminalibus dispositis, involucri piloso-tomentoso squamis inæqualibus pluriseriatis appressis interioribus lineari-lanceolatis obtusiusculis mucronulatis apice purpurascentibus, corolla superne leviter dilatata pappi setis exterioribus brevibus complanatis interioribus gracilibus breviter plumosis, ovario sericeo-hirtello.

HAB. Lower plateau, north of Lake Nyassa, Mr. Thomson.

*Rami* ut videtur stricti parce ramosi. *Folia* 1-1½ poll. longa, lineam lata, costa subtus minute pubescente. *Capitula* ⅓-½ poll. longa; *squamæ* involucri exteriores multo breviores ovato v. ovali-oblongæ obtusiusculæ plus minus mucronulatæ.

Ripe achenes I have not seen.

Fig. 1. Capitulum. 2. Corolla. 3. Ovary and pappus.



**V. Nyassæ**, *Oliver, sp. nov.*, acaulis, foliis radicalibus oblanceolatis acutiusculis v. obtusis pilosulis supra scabride hirsutis petiolo piloso, scapo monocephalo piloso foliis 2-3-plo longiore, capitulo multifloro, involucri squamis 2-3-seriatis lanceolatis acuminatis pilosis, exterioribus brevioribus subulatis laxe appressis, corollæ segmentis linearibus patentibus, ovario pilis subappressis hirsuto, pappi setis barbatis exterioribus multo brevioribus.

**HAB.** Higher plateau, north of Lake Nyassa, *Mr. Thomson*.

*Folia*  $\frac{3}{4}$ -2 poll. longa, 3-5 lin. lata. *Scapus* 2-3 poll. longus. *Capitulum* poll. diametro, floribus involucri superantibus—**D. OLIVER**.

Fig. 1. Corolla, detached. 2. Ovary and pappus.

## PLATE 1350.

### ACACIA HUNTERI, *Oliv.*

LEGUMINOSÆ, Suborder MIMOSÆÆ.

**A. Hunteri**, *Oliver, sp. nov.*—Glabrata, pallida; aculeis ternis rectis v. curvulis, foliis parvis, pinnis 2-3-jugis; foliolis latiuscule oblongis obtusis v. interdum obscure mucronulatis basi oblique subcoarctatis glabris, rhachide puberula, floribus spicatis sessilibus, spicis breviter pedunculatis, calyce campanulato puberulo, petalis oblanceolatis mucronulatis, legumine oblongo stipitato valvis obtusis mucronatis transverse venulosis puberulis.

**HAB.** Neighbourhood of Aden, *F. Hunter*.

*Folia*  $\frac{1}{2}$ - $\frac{1}{2}$  poll. longa, rhachide puberula; foliola ad 1 lin. longa. *Inflorescentia* cum pedunculo  $\frac{1}{2}$ - $\frac{3}{4}$  poll. longa. *Legumen*  $\frac{3}{4}$ -1  $\frac{1}{2}$  poll. longa,  $\frac{1}{2}$  poll. lata, 1-3-sperma.—**D. OLIVER**.

Fig. 1. Leaflet. 2. Bud. 3. Petal. 4. Expanded flower and separate anther. 5. Legume laid open, with a single funiculate seed remaining: excepting the last, enlarged.

# ICONES PLANTARUM.

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PLATE 1351.

**TECOMA NYASSÆ**, *Oliv.*

BIGNONIACEÆ.

**T. Nyassæ**, *Oliver, sp. nov.* Aff. *T. capensi*, differt: foliis sæpius obtusioribus, calyce 2-3-plo longiore 5-fido, lobis ovato-lanceolatis acutatis acuminatisve.

**HAB.** Lower plateau, North of Lake Nyassa, E. Tropical Africa, *Mr. Thomson.*

*Ramuli* puberuli glabrescentes. *Foliola* lateralibus 2-3-juga breviter petiolulata late elliptica v. ovato-elliptica obtusa apicem versus crenato-serrata subtus ad venarum axillas sæpe villosula, terminalia basi rotundata  $1\frac{1}{2}$ - $1\frac{3}{4}$  poll. longa. *Inflorescentia* racemosa longe pedunculata folia superantia; pedunculus semi-pedalis minute puberulus teretiusculus; bracteæ lineari-subulatæ caducæ; pedicelli  $\frac{1}{2}$  poll. longi medio bibracteolati, bracteolis subulatis. *Calyx* tubuloso-infundibuliformis puberulus  $\frac{1}{2}$ - $\frac{3}{4}$  poll. longus 5-lobatus, lobis tubo brevioribus oblongo- v. ovato-lanceolatis apice plus minus acuminatis curvulis. *Corolla* calyce 3-plo longiora longe tubuloso-infundibuliformis incurva, limbo bilabiato lobis late ovatis ovato-rotundatisve obtusis. *Stamina* exserta.—D. OLIVER.

Fig. 1. Flower. 2. Anther, front and back.

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## PLATE 1352.

**BEGONIELLA KALBREYERI, Oliv.**

## BEGONIACEÆ.

**B. Kalbreyeri**, *Oliver, sp. nov.* Papilloso-setigera, perianthio duplici exteriore campanulato undulato-4-lobulato interiore genitalia æquante campanulato hyalino-membranaceo, staminibus 4 erectis filamentis brevissimis a basi subliberis.

HAB. Antioquia, *Mr. Kalbreyer.*

*Caulis* 6-15 poll. erecti papilloso-hirsuti. *Folia* oblique ovato-elliptica acuminata plus minus grosse serrata utrinque papilloso-setulosa, breviter petiolata, 2-3 poll. longa; stipulis lineari-lanceolatis petiolo sublongioribus. *Flores* axillares pedunculati, pedunculis folio brevioribus sæpius 1-2-4-floris, bracteis ovato-oblongis v. lanceolatis. *Perianthium* exterius ore late 4-lobulatum, extus setulosum  $\frac{1}{2}$ -poll. longum; p. interius breve campanulatum membranaceum. *Anthere* lineares apicem versus paullo latiores.

This plant at first sight, in habit, form and size of leaves, indumentum and form of the flowers, closely resembles my *B. Whitei*, described and figured in 'Trans. Linnæan Society,' v. xxviii. p. 513, pl. 41. It differs in the few bracts of the peduncles, which are numerous and distichous in *B. Whitei*, and, much more notably, in the presence of a short inner perianth (corolla), about or nearly equalling the stamens in the ♂ and the branches of the stigma in the ♀ flower, also in the form and insertion of the anthers, which in the new plant are very slightly dilated above (not obovate-cuneate as in *B. Whitei*) and erect from their insertion (in *B. Whitei* distinctly monadelphous, the anthers diverging in two pairs). These differences compel a little expansion of the generic character.—D. OLIVER.

Fig. 1. Staminate flower. 2. Same, calyx laid open. 3. Stamens, the corolla laid open. 4. Anther. 5. Pistillate flower. 6. Transverse section of ovary.

## PLATE 1353.

**PHYLLOBOTRYUM SPATHULATUM, Muell. Arg.**

## BIXACEÆ.

**P. spathulatum**, Muell. Arg.; DC. Prod. xv. pt. 2, p. 1232.

HAB. Sierra del Crystal, *G. Mann.* Munda, Gaboon, *H. Soyauz* (descr. ex. spp. Gaboonensibus).

*Arbuscula* 10-pedalis. *Folia* elongata oblanceolata acuminata basi angustata v. obtusiuscula.  $1\frac{1}{4}$ - $1\frac{3}{4}$  ped. longa. *Flores* polygami masculi

broditi, pedicellati, in costa primaria fasciculati: fl. ♂, ♀, oblongo-obovatis calyce 2-3 plo. longioribus; ovario libero unico 1-loculare, placentis tribus multiovulatis; styli 3 liberi; fl. ♂ trimeri, staminibus circ. 15-18, filamentis gracilibus, ltoideo-ovatis.

A specimen figured of this singular plant we are indebted to M. Soyaux and Dr. Ascherson, adding to our previous knowledge of it as published by Mueller, and confirming his view as to its affinity ('Bull. Soc. Linn., Paris,' 1881, p. 100), however, regard M. Soyaux's plant as distinct from the one I see M. Baillon does, proposing to call it *P. Soyauxianum* (3). A detached fruit sent me a few weeks ago by Dr. Ascherson, already dehiscent loculicidally in three valves from the apex, may be  $\frac{1}{2}$  to  $\frac{3}{4}$  in. in diameter, the pericarp minutely tubercled, and containing some four albuminous seeds with embryo about  $\frac{1}{2}$ th in. in length, the radicle as long as or longer than the ovate cotyledons.—D. OLIVER.

1. Male flower. 2. Hermaphrodite flower. 3. Stamen. 4. Transverse section of ovary.

## PLATE 1354.

### INDIGOFERA TRACHYPHYLLA, Benth.

LEGUMINOSÆ, Suborder PAPILIONACEÆ.

*indigofera*, § *Simplicifoliæ*) *trachyphylla*, Benth. MS. 1. *ramosa*, *hirsuta*, foliis lineari-lanceolatis oblongisve apice mucronatis brevissime petiolatis margine sæpe angustissime utrinque setulis subappressis scabridis, stipulis acicularibus longis, pedunculis axillaribus folio subæquilongis erectis, stipulatis pedicellatis, pedicellis bractea subulata brevioribus, goso profunde 5-fido lobis acuminatis, corolla exserta, ovario setoso.

Shiré Highlands, Zambesia, J. Buchanan!

2.  $\frac{3}{4}$ -2-pedalis ramosus, ramis adscendentibus setis inæquis. *Folia*  $1\frac{1}{4}$ - $2\frac{1}{4}$  poll. longa  $\frac{1}{2}$ - $\frac{3}{4}$  poll. lata. *Inflorescentia* subglobosa capitata. *Flores* 2-lin. longi; vexillum obovato-m extus strigulosum; carina utrinque calcarata vexillo longior; alæ oblancoolato-oblongæ carina breviores. *Ovarium* sum, stylo superne glabro.—D. OLIVER.

1. Flower. 2. Vexillum, within. 3. Ala. 4. Carina, lateral view. 5. Calyx. 6. Stamens. 7. Anther. 8. Young fruit. 9. Same, open.

## PLATE 1355.

**DIPLORHYNCHUS MOSSAMBICENSIS, Benth.**

## APOCYNACEÆ.

**D. Mossambicensis, Benth. sp. nov.** Arbor, ramulis ultimis teretibus puberulis, foliis ellipticis breviter obtuse acuminatis basi sæpius rotundatis longiuscule petiolatis glabratiss, paniculis tomentellis terminalibus subsessilibus foliis brevioribus, floribus breviter pedicellatis, folliculis lignosis rugosis 4-spermis.

HAB. Shiré Highlands, Zambesia, *J. Buchanan*.

*Folia* late elliptica submembranacea  $2\frac{1}{4}$ – $3\frac{1}{2}$  poll. longa,  $1\frac{1}{4}$ –2 poll. lata; petiolus  $\frac{1}{2}$ – $\frac{3}{4}$  poll. longus. *Flores* (alabastro)  $\frac{1}{2}$  poll. longi; pedicelli tomentelli calyce superne extus glabrato longiores. *Calyx* 5-fidus, lobis ovatis ciliolatis. *Corolla* fere glabra, lobis tubo æquilongis. *Folliculi* 2-poll. longi  $\frac{3}{4}$ –1 poll. lati; semina alata funiculata 2 prope basin 2 sub apice peltatim affixa, ala inclusa  $1\frac{1}{2}$  poll. longa.

Called *Mtomoni* by the natives; a large tree abounding, Mr. Buchanan says, in 'a white juice possessing a good deal of the quality of India Rubber.' Very nearly allied to *Diplorhynchus psilopus*, Welwitsch MSS. (No. 5982 of his *Iter Angolense*), in which, however, the leaves are much more gradually, or more cuneately, narrowed into their long petioles.—D. OLIVER.

Fig. 1. Bud. 2. Flower. 3. Corolla, laid open. 4. Anthers, back, front and side views. 5. Pistil. 6. Ovary, transverse section. 7. Follicle. 8. Same, open, one valve removed. 9. Seed.

## PLATE 1356.

**RANDIA BUCHANANII, Oliv.**

## RUBIACEÆ, Tribe GARDENIEÆ.

**R. Buchananii, Oliver, sp. nov.** Glabra, ramulis teretibus, foliis ellipticis v. obovato-ellipticis late et obtusiuscule acuminatis basi sæpe cuneatis, petiolatis, floribus erectis solitariis terminalibus breve pedunculatis, calyce truncato breviter 5-dentato, corolla tubo appresse piloso infundibulari-campanulato basi in tubo cylindrico calyce longiore angustato, limbo 5-lobo, lobis patentibus late ovatis, fructu globoso pericarpio tenui, endocarpio osseo.

HAB. Shiré Highlands, Zambesia, *J. Buchanan*.

*Folia* membranacea glabra,  $3\frac{1}{2}$ –4 poll. longa,  $1\frac{1}{2}$ –2 poll. lata; petiolus

$\frac{1}{2}$  poll. longus; stipulæ breves late deltoideæ persistentes. Flores  $2\frac{1}{2}$ –3 poll. longi; pedunculi  $\frac{1}{2}$  poll. longi, bractæ breves ovato-deltoidæ ciliolatæ. Calyx  $\frac{1}{2}$  poll. longus, basi angustatus cylindricus corollæ brevior. Corolla limbo  $2\frac{1}{2}$  poll. lato. Fructus subglobosus sublævis bilocularis polyspermus  $1\frac{1}{2}$  poll. diametro.—D. OLIVER.

Fig. 1. Anther, back and front. 2. Fruit. 3. Same, open.

PLATE 1357.

**BURMANNIA KALBREYERI**, Oliv.

BURMANNIACEÆ.

**B. Kalbreyeri**, Oliver, *sp. nov.* Perennis, caulibus adscendentibus foliosis basi foliis marcescentibus vestitis, foliis gramineis linearibus acuminatis nervosis, cymis multifloris a basi umbellatim 3–5-partitis, floribus erectis longe pedicellatis, bracteis majusculis herbaceis, ovario triquetro vix v. haud alato, seminibus inappendiculatis.

HAB. S. José, Prov. Antioquia, Mr. Kalbreyer.

*Herba* subpedalis, caulibus basi plus minus decumbentibus. *Folia* inferiora 4–7 poll. longa  $\frac{1}{2}$ – $\frac{1}{4}$  poll. lata; superna gradatim minora. *Bractæ* lanceolatæ acuminatæ  $\frac{1}{2}$ – $\frac{3}{4}$  poll. longæ. *Flores* semipollicares: perianthii lobis exterioribus violaceis ovatis acutis interioribus brevioribus lineari-lanceolatis albis. *Antheræ* diametro transversali quam verticali subduplo majores connectivo crassiusculo. *Ovarium* basi angustatum triquetrum. *Semina*  $\frac{1}{8}$ – $\frac{1}{10}$  poll. longa oblonga v. anguste fusiformia inappendiculata.—D. OLIVER.

In *facies* resembles somewhat *B. longifolia*, Beccari, (Malesia, i. t. 13, fig. 1).

Fig. 1. Flower, perianth closed. 2. Part of perianth laid open. 3. Stigma. 4. Transverse section of ovary.

PLATE 1358.

**PHYSOTRICHIA BUCHANANI**, Benth.

UMBELLIFERÆ, § SESELINÆ.

**P. Buchanani**, Benth. *sp. nov.* 5–6 pedalis, glabra; caule erecto tereti striato glaucescente, foliis sæpius ad apicem ramorum confertis, petiolo brevi vaginato, bipinnatis, pinnis 1–2-jugis, foliolis sæpius 1–3-

jugis cum impari, lateralibus oblique et late ellipticis mucronulatis, terminalibus obovato-rotundatis sæpe minute 3-dentatis, umbellis pluriradiatis longe pedunculatis, bracteis reflexis anguste ovalibus, fructibus oblongis subteretibus hirtellis, jugis primariis prominulis crassiusculis.

HAB. Top of Mount Zomba, Shiré Highlands, *J. Buchanan*.

*Folia* radicalia non vidi, caulescentes 5-7 poll. longa et lata; foliolis 1-2 poll. longis  $\frac{3}{4}$ -1 $\frac{1}{2}$  poll. latis, sessilibus v. lateralibus basi oblique angustatis subpetiolulatis. *Umbellæ* compositæ tomentellæ 4-8 poll. diam.; involucri bracteæ  $\frac{3}{4}$ -1 $\frac{1}{2}$  poll. longæ, marginis submembranaceis pallidis, involucellorum bracteæ minores; pedicelli hirtelli fructu longiores. *Petala* obovata apice inflexa. *Fructus* ellipsoideo-oblongus, 2 lin. longus.—D. OLIVER.

Fig. 1. Flower. 2. Stamens. 3. Pistil. 4. Fruit. 5. Mericarp, transverse section.

## PLATE 1359.

### BRACHYSTEGIA LONGIFOLIA, *Benth.*

LEGUMINOSÆ, CÆSALPINIÆ, Tribe AMHEESTIÆ.

*B. longifolia*, *Benth. sp. nov.*; foliis glabris, foliolis 8-12-jugis oblongo-lanceolatis obtusis sessilibus basi oblique subcordatis, racemis latiuscule paniculatis rufo-puberulis, floribus pedicellatis, ovario stipitato.

HAB. Tropical Africa, Shiré Highlands, Zambesia, *J. Buchanan*. N'Jombo of the natives.

*Arbor* ligno molli, ramis adultis foliisque glabris, novellis paniculaque pube minuta rufidulis. *Folia* inferiora pedalia; foliola 2-3-pollicaria, 6-9 lin. lata, tenuiter coriacea, nitidula, venulosa, subtus pallida, costa parum excentrica, prope basin tamen distincte inæquilatera, venis 1-2 in latere latiore medium folium interdum attingentibus; ramorum floralium folia foliolaque minora. *Panicula* in ramulis hornotinis brevibus 1-3-foliatis terminales v. in ramo annotino laterales, aphyllæ, ovato-pyramidatæ, laxiusculæ, 2-4-pollicares, floribundæ, ramulis patentibus simplicibus v. 2-fidis. *Bracteæ* parvæ, orbiculatæ, jam ante anthesin caducæ. *Pedicelli* vix semilinea longiores. *Bracteolæ* valvatæ, 3-3 $\frac{1}{2}$  lin. longæ. *Sepala* 5, lineari-oblonga, membranacea, ciliata, lineæ paullo longiora. *Petala* sæpe adsunt 3-4, linearia, tenuissima, sepalis longiora. *Stamina* bracteolis paullo longiora. *Ovarium* distincte stipitatum, oblique obovatum, pilosum, ovulis 6-8. *Legumen* sublignosum, compressum, valde obliquum, 4-5 poll. longum,

lio 2 poll. latum, apice basique angustius, sutura seminifera 2-ata. Semina perfecta sæpius 2, suborbiculata, plana.

gave a revised generic character and described three species of tropical African genus in the Linnean 'Transactions,' xxv. 311, 2, to these Mr. Buchanan's collections from the Shiré Highlands he added three more, the above *P. longifolia* and the two following, distinguished from the previously published ones by the looser radiating panicles.

*P. floribunda*, Benth., foliis glabris, foliolis 3-jugis late oblongis ovise obtusis sessilibus basi inæquilateris, racemis latiuscule paniculatis rufo-pubescentibus, floribus pedicellatis, ovario stipitato rufo-sissimo.—Arbor procera, ligno duro. Foliorum rhachis tenuis, imipedalis; foliola 3-4 poll. longa, 1-2 poll. lata, papyracea, venulosa, a parum v. distincte excentrica, basi latere latiore sæpe 2-3 nervia. Paniculæ in ramis annotinis fasciculatæ, 2-3-pollicares, a basi dense bundæ, rufo-pubescentes. Bracteolarum paria in alabastro dea, 2 lin. longa. Sepala *B. longifoliæ*. Petala deesse videntur. Legumen 4-5 poll. longum, a basi ad apicem  $1\frac{1}{2}$  poll. latum. Semina orbiculata, plana.—The natives distinguish two varieties, one with broader leaflets than the other, but the other characters are quite the same in both.

*P. globiflora*, Benth., foliis pubescentibus, foliolis 5-7-jugis late ovatis obtusis basi valde inæqualibus, racemis late laxèque paniculatis, pedicellis brevissimis, ovario sessili villosulo.—Arbor procera. Foliorum inferiorum rhachis sæpe pedalis, foliolis 3-4 poll. longis  $1\frac{1}{2}$  poll. latis, ramorum floralium foliola multo minora et angustiora. Panicula terminalis, foliata, ampla, v. in ramis annotinis paniculæ breves a valde divaricatis recurvis. Bracteolarum paria in alabastro dea, fere 2 lin. diametro. Sepala interdum parum breviora, et a linearia quam in cæteris speciebus evidentiora. Legumen 2-are,  $\frac{3}{4}$  poll. latum.—G. BENTHAM.

1. Flower showing the two bracteoles, three of the sepals, two of the petals, the stamens and the pistil. 2. A sepal. 3. A petal. 4. Pistil. 5. Ovary, longitudinal section. 6. Pod. 7. Seed.

## PLATE 1361.

### MICRAIRA SUBULIFOLIA, F. Muell.

GRAMINEÆ, Tribe ISACHNEÆ.

*subulifolia*, F. Muell., *Fragm. Phyt. Austral.*, v. 208.

1. Queensland, hilly districts, on rocks, sometimes completely covering them in dense masses, *Dallack* and others.



*Gramen* humile, perenne, prostratum v. repens, interdum densæ cæspitosum, basi ramorum et vaginis foliorum emarcidorum plus minus obtectum. *Folia* in ramulis dense fasciculata, lineari-subulata, raris semipollicem excedentia, vagina ad os leviter ciliata. *Panicula* terminalis, gracilis, pedunculata, laxè pyramidata, pollice brevior, ramulis pedicellisque capillaribus. *Spiculæ* minimæ, æqualiter 2-floræ, rhachilla supra glumas inferiores articulata, brevissima, ultra flores non producta. *Glumæ* 2 inferiores vacuæ, vix semilinea longiores, sub articulatione persistentes v. demum sigillatim deciduæ, membranaceæ, acutæ, tenuissime venosæ, muticæ, subæquales; florentes 2 vacuis breviores, membranaceæ, latæ, truncatæ, nervis ad 7, fructiferæ cum palea inclusa subhemisphæricæ, non induratæ. *Palea* plurinervis, nervis 2 cæteris evidentioribus. *Stamina* 3? *Styli* breves, distincti, stigmatibus plumosis. *Caryopsis* gluma paleaque inclusa, libera.—G. BENTHAM.

Fig. 1. Leaf. 2. Spikelet. 3. Flowering glume and palea. 4. Flowering glume opened out. 5. Palea, opened out. 6. Pistil. 7. Caryopsis.

## PLATE 1362.

### ACIACHNE PULVINATA, Benth. ♀.

GRAMINEÆ, Tribe AGROSTIDEÆ (*Stipeæ*).

*Aciachne*, Benth. gen. nov., Char. gen. *Spiculæ* unisexuales, ♂ ignotæ. *Spicula* ♀ 1-flora, in pedunculo terminali unica, erecta, rhachilla brevissima supra glumas inferiores articulata, ultra florem non producta. *Glumæ* 3, 2 inferiores vacuæ, latæ, tenuiter membranaceæ subhyalinæ et rigidulæ, obtusæ, muticæ, parum inæquales, sub articulatione persistentes; terminalis florens multo longior, rigida, basi lata circa florem convoluta, superne in acumen longum teres rigidum producta; palea brevior, inclusa, hyalina, latiuscula, circa florem convoluta, tenuiter 2-nervis. Lodiculæ parvæ. *Staminodia* 0. *Styli* distincti, stigmatibus plumosis. *Caryopsis* (immatura) oblonga, gluma rigida subindurata inclusa, libera.

*A. pulvinata*, Benth. MS., single species.

HAB. Andes of South America, Parano Viejo, New Granada, a most annoying weed to walk through, the glumes sticking to the feet. *Purdie*; New Granada, *Goudot*; El Ecuador, abundant near Salinas ou marshy ground, forming a dense mass, *Jameson*, n. 157; Aigapata, in Peru, where it forms large masses, *Lechler*, n. 3134, also in Hohenacker's distribution of *Lechler's* plants under the number 1813, as

at the summit of the Cordilleras near San Antonio, but as the very name of *Distychia muscoides*, Nees, is given, there may be some error on the label; La Paz, Bolivia, at an elevation of 12,226 feet, and; Alpine region, province of Larecaja, Bolivia, at an elevation of 12,000 to 14,000 metres, *Mandon*, n. 1287.

*Herba* perenne, nanum, multicaule, pulvina latissima densissime caespitosa formans. *Caules* cum foliis 1-3-pollicares, foliorum vaginis atque demum fere denudati. *Folia* densissime caespitosa, nunc subdisticha nunc quaquaversa, laminis patentibus nervis convolutis subulatis rigidis saepe pungentibus raro semimembris excedentibus; ligula prominens ovata. *Pedunculus* terminalis, folia parum excedens v. iis brevior. *Glumae* vacuae diu persistentes,  $\frac{3}{4}$ -1 lin. longae; florens cum acumine dimidio v. subduplo longior.

Notwithstanding the number of specimens from most of the above localities, I have been unable to detect any but female spikelets, which are of them are numerous, often past flower, and showing only persistent outer glumes. The males are probably on distinct panicles and most likely with a different inflorescence, rendering it difficult to identify them. If that be the case, it is possible that the female of this, or an allied species, may be represented by Lechler's *Distychia* gathered at Gachapata in Peru, a month earlier than the specimens above referred to, and distributed with the number 599. In the female the leaves are longer, all erect, and very rigid, 1 to 3 in. long. The spikelets are several in a loose, slightly branched, rigid, erect panicle of 1 to 2 inches, the glumes precisely like those of the females, enclosing three perfect stamens, and the ovary reduced to an rudiment with two small points.—G. BENTHAM.

1. Seed. 2. Leaf. 3. Spikelet. 4, 5. Lower empty glumes. 6. Ovary and palea, lodicules, and ovary, the styles having fallen off. 8. Flowering branch almost closed over the palea. 9. Flowering branch from the specimens collected by the lower general figure; the upper general figure represents specimens from the same localities with much finer leaves with narrower sheaths.

## PLATE 1363 A.

### ANTHOCHLOA LEPIDA, Nees.

GRAMINEAE, Tribe FETUCEAE (*Meliceae*).

*Anthochloa lepidula*, Nees in *Pl. Meyen.* 164 (lapsu calami *Antochloa*).

Andes of Peru and Bolivia at an elevation of 14,500 to 16,000 feet, *Meyen*, *Mandon*, n. 1372.

*Herba* nanum, dense caespitosum, caulibus foliorum vaginis ob-

tectis,  $\frac{1}{2}$ –2 poll. longis. *Folia* anguste linearia, plana,  $\frac{1}{2}$ –1 poll. longa. *Paniculae* laxae capituliformes (sæpius densiores quam in icone delineatæ), inter folia terminales, sessiles v. breviter pedunculatæ, folia superiora breviter vix superantes. *Spiculæ* paucifloræ, secus rhachin singulæ v. inferiores 2–3-næ brevissime pedicellatæ, rhachilla inter flores articulata, floribus hermaphroditis. *Glumæ* latæ, hyalinoscariosæ, albæ, muticæ, 2 inferiores vacuæ, inæquales; florentes majores, a basi brevissime cucullata latissime expansæ, fere fiabellatæ, petaloideæ  $1\frac{1}{2}$  lin. diametro, breviter tenuiterque 5-nerves; 1–2 superiores minores, vacuæ, sub-3-nerves. *Palea* angusta, hyalina, 2–3-fida v. lobo medio diviso fere 4-fida. *Stamina* 3. *Styli* breves, distincti, stigmatibus plumosis. *Caryopsis* immatura ovoidea, intra basin glumæ a palea libera.

This curious little grass with its numerous little heads of white spikelets has almost the aspect of some of the dwarf *Helichrysa*. Our specimens are Bolivian from Mandon, but they agree well with Nees's description of Meyen's Peruvian plant. Remy has published a second Bolivian species gathered by D'Orbigny, but I cannot make out from his description any really distinctive character.—G. BENTHAM.

Fig. 1. Spikelet enlarged and represented looser than it is at the time of flowering. 2. Outer empty glume. 3. Flowering glume. 4. Palea. 5. Stamens and pistil.

## PLATE 1363 B.

### UROCHLÆNA PUSILLA, Nees.

GRAMINEÆ, Tribe FESTUCEÆ (*Seslerieæ*).

*U. pusilla*, Nees, *Fl. Afr. Austr. Gram.*, 438.

HAB. South Africa, dry sandy hills near Ebenezer, Clanwilliam district, *Drege*. Not seen in any other collection.

*Græmen* pumilum, annuum, caulibus tenuibus rigidulis 3–4-pollicaribus. *Folia* angusta, pauca, summum sub inflorescentia spiculas superans, a cæteris distans. *Spiculæ* parvæ, paucifloræ, in panicula capituliformi secunda densissime fasciculatæ, floribus hermaphroditis v. summo masculo; capitulum intra vaginam folii summi floralis subsessile, basi et intra capitulum ad basin ramulorum brevissimorum spiculis nonnullis sterilibus v. glumis vacuis quasi involucreto, fructiferum cum folio flori a geniculo superiore caulis articulatum deciduum. *Glumæ* ovatæ, concavæ, membranaceæ, 5–7-nerves, acuminatæ, acumine in aristam patentem producta; 2 infimæ vacuæ, florentibus paullo minores; superiores iterum paullo minores. *Palea* glumæ paullo brevior, hyalina, 2-carinata. *Stamina*. . . *Styli* distincti, stigma-

tibus laxè plumosis. Caryopsis breviter oblonga, glabra, a palea libera.

The manner in which the fruiting inflorescence with its subtending leaf breaks off from the stem or peduncle has not, as far as I am aware, been observed in any other grass. The genus is otherwise, as observed by Nees, allied to *Sesleria*. Drege's specimens are all past flower, so that the stamens are unknown.—G. BENTHAM.

Fig. 1. Spikelet. 2, 3, 4, 5. Glumes. 6. Palea. 7. Pistil. 8. Caryopsis.

PLATE 1364.

YOANIA JAPONICA, *Maxim.*

ORCHIDEE, Tribe NEOTTIEÆ (*Arethuseæ*).

*Y. japonica*, *Maxim.* in *Bull. Acad. Sc. Petersb.*, xviii. 68; *Mel. Biol.*, viii. 647.

HAB. Japan, in Alpine woods in middle Nippon, whence Maximowicz received three specimens from his collector, Tschonoski, in 1864.

'*Caulis* crassus, decolor, erectus, spithameus v. pedalis, aphyllus, parte subterranea ramosus, sparse squamatus, villosus, parte epigæa glaber, basi crebre sursum remote vaginis concavis ovatis membranaceis tectus, e quarum superioribus prodeunt flores longe pedunculati, diametro 2-pollicares, in racemum laxum 4-7-florum collecti' (*Maxim.*). *Sepala* carnosa, libera, patentia, oblonga, lateralia, subinaequilatera. *Petala* sepalis paullo breviora, ovata, conniventia. *Labellum* cum petalis campanulato-connivens, iis æquale, liberum, lata basi sessile, suboblongum, concavum, apice contracto subfornicatum, medio in sacculum breve excavatum, læve. *Columna* labello brevior, erecta, plana, quadrata; stigma transversum, profunde excavatum, rostello obsoleto; clinandrii lobus medius triangulari-ovatus, laterales semiovati, in alas columnam marginantes abeuntes. *Anthera* lobo medio adnata, persistens, longe rostrata; loculorum facies a margine solutæ; pollinia 4, oblonga, pulposa, sectilia, per bina caudiculis (stipitibus rostelli?) arachnoideo-viscidulis glandulæ affixa, quæ quasi semilunaris margini superiori stigmati inserta.—(*Abridged from Maximowicz*).

Of this curious plant, more nearly allied to *Epipogon* than to any other, I have seen no specimen. The accompanying plate is copied from a drawing obligingly sent to us by Dr. Maximowicz, taken from the above-mentioned specimens. He has also sent a copy of a sketch

of Siebold's, representing a somewhat distinct variety or species with larger flowers.—G. BENTHAM.

Fig. 1. Peduncle and flower, side view. 2. Flower, partly laid open, showing the shape of the labellum. 3. Details of the flower: s. sepals, p. petals, l. labellum, c. column. 4. Column, the anther-lid turned up. 5 and 6. Pollen masses.

## PLATE 1365.

### NORONHIA BROOMEANA, Horne.

OLEACEÆ, Tribe OLEINEÆ.

**N. Broomeana**, Horne MSS. Arbor; foliis anguste v. late ellipticis obovatis v. rotundatis breviter apiculatis basi cuneatis subcoriaceis in axillis venarum subtus tomentellis, paniculis lateralibus plurifloris foliis brevioribus, bracteis parvis ovato-lanceolatis sericeis, pedicellis pubescentibus calyce 4-fido subæquilongis, corolla alba 4-partita, fructu ellipsoideo utrinque angustato 8-costato, endocarpio crustaceo deinde bivalvatim dehiscente, semine exalbuminoso, cotyledonibus crassis carnosiss.

HAB. Forests near Grand Bassin, Mauritius, Mr. J. Horne.

Arbor 50–70-pedalis, ramulis cinereis, innovationibus puberulo-sericeis. Folia 3–5 poll. longa  $1\frac{1}{2}$ –5 poll. lata, subtus pallidiora. Paniculae basi ramulis hornotinis  $1\frac{1}{2}$ –3 poll. longæ, leviter pubescentes. Calyx 4-fidus, lobis ovato-deltoides. Corolla glabra, lobis  $\frac{1}{2}$  poll. longis 1 lin. latis. Fructus drupaceus 1–2 poll. longus, medio  $\frac{1}{2}$ –1 poll. diam.

Mr. Horne says this fine tree is known in the island as the 'Sandal,' and that he has only seen it in the locality cited, where it is not uncommon.—D. OLIVER.

Fig. 1. Flower. 2. Corolla laid open. 3. Stamen. 4. Calyx and ovary. 5. Longitudinal section of ovary. 6. Fruit. 7. Embryo.

## PLATE 1366. FIG. A.

### VERONICA CHEESEMANI, Benth.

SCROPHULARINEÆ, Tribe DIGITALEÆ.

**V. Cheesemani**; perpusilla, cæspitosa, ramosissima, cano-pubescent, ramis gracilibus intricatis, foliis petiolatis cuneato-obovatis grosse obtuse dentatis lobulatisve, floribus axillaribus solitariis subsessilibus, calycis segmentis cuneato-spathulatis apices obtusos versus crenatis,

corollæ segmentis obovatis retusis, ovario late ovoideo hispidulo.—*V. Cheesemani*, *Benth. MSS.*

HAB. New Zealand; Nelson, on the Raglan Mountains, Wairau Valley, alt. 5000 ft., *T. F. Cheeseman*.

Cæspites 2–3 poll. diametro; radice gracili elongato, ramis perplurimis filiformibus dense intertextis. *Folia* patentia,  $\frac{1}{2}$ – $\frac{1}{5}$  poll. longa, in petiolum angustata, utrinque puberula; petiolo laminæ æquilongo. *Flores* inconspicui, albi,  $\frac{1}{10}$  poll. diametro. *Calycis* segmenta corolla paullo breviora, recurva. *Capsula* sepalis brevior, subdidymo-globosa, compressa, hispidula, matura ad basin 4-valvis; semina minuta, plano-convexa, fere ellipsoidea, testa granulata.

A very singular little species with the habit of a small *Euphrasia*, belonging to a section of the genus with solitary axillary flowers, of which only one species (*V. canescens*, T. Kirk in 'Trans. New Zeal. Inst.' v. ix. pp. 503 to 519) had previously been discovered in New Zealand. This latter differs in being still smaller, with procumbent stem, almost orbicular entire leaves, and peduncled pale blue flowers, which are large for the size of the plant; it has elliptic acute calyx-segments; its fruit is unknown. The capsule of *V. Cheesemani*, represented at fig. 6, is much narrower and less didymous than in specimens examined by me.—J. D. HOOKER.

Fig. 1. Leaf. 2. Flower. 3. Calyx. 4. Stamens. 5. Ovary. 6. Capsule, all enlarged.

PLATE 1366. FIG. B.

**PORANTHERA ALPINA**, *Cheesem.*

EUPHORBIACEÆ, Tribe STENOLOBIEÆ.

*P. alpina*, herba pusilla, intricatim ramosissima, glaberrima, ramulis ascendentibus foliosis, foliis parvis subimbricatis erecto-patentibus sessilibus lineari-oblongis obtusis coriaceis marginibus fere ad costam crassam recurvis, floribus ad apices ramulorum subfasciculatis, pedunculis foliis brevioribus superne incrassatis, sepalis 5 oblongis obtusis, petalis 0.—*P. alpina*, *Cheesem. MSS.*

HAB. New Zealand; Nelson Province, Port Arthur, alt. 4–500 to 5–800 ft. *T. F. Cheeseman*. H. Jay.

*Herba* 3–5-uncialis, ramis ramulisque flexuosis intertextis teretibus, articulatis, cortice rufo-fusco. *Folia*  $\frac{1}{2}$  poll. longa, opposita et subopposita, crassiuscula, lævia, superne convexa, enervia; costa subtus crassissima; stipulæ minutæ, latæ, obtusæ, castaneæ, oppressæ. *Flores*  $\frac{1}{2}$  poll. diam. in axillis supremis, flavescentes, pedicello perianthio

paullo longiore. *Sepala* patula v. incurva. *Stamina* sepalis paulo breviora, filamentis gracilibus; antheræ 4-lobæ, poris verticalibus. Ovarium subglobosum, alte 3-lobum, stigmatibus brevibus 2-fidis.—J. D. HOOKER.

Fig. 1. Male flower. 2. Anthers. 3. Female flower. 4. Ovary. 5. Transverse section of do. 6. Vertical section of carpel, all enlarged.

## PLATE 1367.

### RHANTERIUM EPAPPOSUM, Oliv.

COMPOSITEÆ, Tribe INULOIDEÆ.

*R. epapposum*, Oliver, sp. nov. Suffrutex incanus ramosissimus; ramulis intricatis gracilibus, foliis remotis paucisque linearibus v. anguste ovalibus remote dentatis integrisve parce lanatis v. glabris carnosulis, capitulis solitariis terminalibus pedunculatis, involucre hemisphærico, bracteis lanceolatis acutis glabris subsquarrosis, receptaculo paleaceo, floribus ♀ anguste ligulatis, ligula marginibus incurvis apice 3-dentata, ovario glabro epapposo.

HAB. Coast of Beloochistan, Mr. E. Pierce.

*Folia*  $\frac{1}{3}$ –1 poll. longa. *Capitula*  $\frac{1}{3}$ – $\frac{1}{2}$  poll. lata; bracteis pluriseriatis coriaceis exterioribus minoribus. *Receptaculum* paleis coriaceis lanceolatis acuminatis marginibus interdum laciniatis. *Achaenia* non vidi.

This plant has very much the aspect of *R. suaveolens*, Desf. (Kralik, Pl. Tunes. 246), though with less rigidly recurved scales of the involucre. We have what I take to be the same plant in the Kew Herbarium from Central Arabia, communicated by Col. Pelly in 1865, who described it as branching from the ground in bushes '1½ ft. high, and from 2 to 5 ft. in circumference, and, where abundant, from 3 to 6 ft. apart.'—D. OLIVER.

Fig. 1. Capitulum. 2. Ray-floret and subtending scale. 3. Disk-floret and scale. 4. Anther (the tails are connate in pairs). 5. Stigma.

## PLATE 1368.

### ERAGROSTIS CŒLACHYRUM, Benth.

GRAMINEÆ, Tribe FESTUCEÆ (*Eragrostideæ*).

*E. (Plagiostachya) Cœlachyrum*, Benth., annua, humilis, foliis brevibus latiusculis, spiculis subdistiche spicatis 3–4-floris glabris, spicis

icem pedunculi 3-4 brevibus confertis, glumis obtusis, caryopsi biculata a dorso compressa valde rugosa antice concava. *Eleusineolia*, Hochst. et Steud. Pl. Schimp. exs. n. 799 non R. Br. *Chyrum brevifolium*, Nees in Linnæa, xvi. 221.

.B. Sandy shores of the Red Sea, near Djedda, *Schimper, S. Fischer*, 3; between Kosseir and Ras-Benass, *Schweinfurth*, n. 1577.

*amen* annuum, cum pedunculo vix 3-pollicare, basi pluricaule, bus lateralibus prostratis v. ascendentibus, medio erecto, undique um. Folia ad basin caulis plura, in caule florido 1 v. 2, supram sessilia, plana, acuta,  $\frac{1}{2}$ -1 poll. longa,  $1\frac{1}{2}$ -2 lin. lata, ligula a nunc vix prominente. Pedunculus supra folium summum  $1-1\frac{1}{2}$  longum. Spicæ ad apicem pedunculi arcte approximate, v. inres parum distantes, singulæ 3-4 lin. longæ. Spiculæ in quaque .8-12, subsessiles,  $1-1\frac{1}{4}$  lin. longæ, compressæ at non planæ. Glumæ sissimæ, laxè imbricatæ, tenuiter membranaceæ, nervis 3 prominentibus. Caryopsis gluma paleaque laxè inclusa, libera, late ovata v. sulcata, a dorso compressa, insigniter rugosa, media facie foveola excavata.

lied to this species is an East Indian Peninsular plant, *Dactylis folia*, Roem., confounded by Steudel and others with the *Æluropus* is, and placed by Kunth in *Poa* (but not the *Æluropus lævis*, .), by Sprengel in *Koeleria*, and by R. Brown in Wallich's logue in *Eleusine*. It has, however, all the characters of *Eragrostis*, may take the name of *E. brevifolia*. It is sometimes quite dwarf, the aspect of *E. Coelachyrum*, but is generally much more robust branched, never, however, with the peculiar rigid creeping habit of *ropus*. The leaves are quite those of *E. Coelachyrum*, but the letes are larger and flatter, with 6 to 12 flowers and hairy glumes, collected into a dense, almost globular head of about  $\frac{1}{2}$  in. diameter. *Æluropus* is readily distinguished by the many-nerved glumes ell as by habit.—G. BENTHAM.

p. 1. Spikelets. 2, 3. Lower empty glumes. 4. Flowering glume, side view. 5. ame, open, with the margins turned in. 6. Palea, lodicules, and caryopsis. 7. ens and pistil. 8. Caryopsis, back view. 9. The same, front view.

## PLATE 1369.

### NEPHELOCHLOA ORIENTALIS, Boiss.

GRAMINEÆ, Tribe FESTUCEÆ (*Eufestuceæ*).

*orientalis*, Boiss. Diagn. Pl. Or. v. 73.

AB. Levant, province of Caria near Gheyra, *Boissier*, and in gia, near Ouchak, *Balansa*.



*Gramen* annuum, erectum, tenue. *Folia* pauca, anguste linearis; siccitate convoluta, 1-2 poll. longa; ligula fimbriato-lacera. *Panicula* fere *Airæ involucrata*, Cav., oblonga, laxa, 3-6-pollicaris, ramis numerosis verticillatis erecto-patentibus capillaribus parce ramulosis, verticillorum inferiorum sæpe sterilibus; pedicelli capillares, spicula sæpe longiores. *Spiculæ* 5-6-floræ, compressæ, distichæ, pilosulæ, bene evolutæ fere 3 lin. longæ, in pluribus speciminibus minores, rhachilla glabra, floribus hermaphroditis. *Glumæ* 2 inferiores vacuæ sub articulatione persistentes, membranaceo-hyalinæ, vix venosæ, obtusæ, muticæ, secunda infima paullo longior, quam florentes paullo brevior; florentes vix carinatæ, basi 5- rarius 7-nerves, apice scariosæ, 2-fidæ, arista inter lobos tenni recta lobis longiore. *Palea* hyalina, 2-dentata, 2-carinata. *Lodiculæ* inconspicuæ. *Stamina* 3. *Styli* brevissimi, stigmatibus brevibus plumosis. *Caryopsis* adhuc immatura a palea libera.

This elegant grass is the only one known of the genus, for the Asiatic species added to it by Grisebach by no means agree with Boissier's character, and should more properly be restored to *Poa*, in which genus they were originally published.—G. BENTHAM.

Fig. 1. Spikelet. 2. Lowest empty glume. 3. Second empty glume. 4. Flowering glume. 5. Palea. 6. Flowering glume, side view. 7. Stamens and pistil.

## PLATE 1370.

### ERAGROSTIS PIERCII, Benth.

GRAMINEÆ, Tribe FESTUCEÆ (*Eragrostideæ*),

*E. (Platystachya) Piercii*, Benth. *sp. nov.*, caulibus elongatis laxis, spiculis secus ramos tenues simplices paniculæ laxæ pedicellatis planis ovatis 8-16-floris, rhachilla articulata, glumis obtusis v. rarius mucronatis glabris, caryopsi lævi.

HAB. Coast of Beluchistan, O. Pierce.

*Gramen* ut videtur perenne, glabrum. *Caulis* basi conferti crassiusculique, decumbentes v. laxè ascendentes, cum inflorescentia  $1\frac{1}{2}$ -pedales longioresque, in parte inferiore foliati interdumque ramosi. *Folia* plana, subulato-acuminata, 1-2-pollicaria v. rarius longiora. *Panicula* longe pedunculata, tenuis, laxa, ramis 3-7 fere filiformibus dissitis v. superioribus subgeminis, inferioribus interdum semipedalibus, superioribus brevioribus. *Spiculæ* secus ramulos distantes, pedicello brevi sæpe capillari fultæ, bene evolutæ 3 lin. longæ, 2 lin. latæ. *Glumæ* complicatæ, distichæ imbricatæ, inferiores linea paullo longiores interdum etsi rarius mucronatæ, 2 infimæ vacuæ sed florentibus similes

post fructus delapsos persistentes, superiores gradatim minores obtusæ. *Caryopsis* oblonga, compressiuscula, lævis.—G. BENTHAM.

Fig. 1. Spikelet. 2, 3. Glumes, side view. 4. Glume laid open. 5. Palea. 6. Stamen. 7. Pistil and lodicules. 8. Caryopsis.

PLATE 1371.

**ERAGROSTIS SCHIMPERI**, *Benth.*

GRAMINEÆ, Tribe FETUCEÆ (*Eragrostideæ*).

**E.** (*Plagiostachya*) *Schimperi*, *Benth.*, erecta foliis angustis longiusculis, spica v. racemo terminali simplici, spiculis brevissime pedicellatis longiusculis 8-10-floris, glumis dissitis angustis acutis, caryopsi lævi. *Harpachne Schimperi*, Hochst. in A. Rich. Fl. Abyss. ii. 431 et in Flora 1855, 331.

HAB. Near Adoa, Abyssinia, *Schimper*, n. 171, *Rohr*.

*Gramen* forte annuum, caules tamen dense cæspitosi  $\frac{1}{2}$ -1-pedales. *Folium* angusta, nunc semipedalia nunc multo minora, ad basin laminæ sæpius ciliata, pleraque ad basin caulis conferta, secus caulem pauca. *Pedunculus* supra folium supremum brevis v. elongatus. *Spica* laxa, 1-3-pollicaris, in speciminibus nostris secunda, sed ex Hochstettero sæpe quaquaversa. *Spiculæ* perfectæ semipollicares, pedicello  $\frac{1}{2}$ -lin. longo fultæ. *Glumæ* 2 inferiores vacuæ, inæquales, florentes longiores, angustæ, acuminatæ, 3-nerves, variant  $1\frac{1}{2}$  ad 2 lin. longæ. *Palea* multo brevior, incurva, 2-carinata, post fructum glumamque delapsos diu persistens. *Caryopsis* oblonga, lævis.

Hochstetter, in pointing out the affinity of this plant to *Eragrostis*, distinguishes it chiefly on account of the third glume enclosing only a palea without any perfect flower, and thus showing an approach to *Uniola*; but *Uniola*, besides the difference in the nerves of the glumes, has at least 3 and usually 4 to 6 of the lower glumes quite empty. The continuous rhachilla and persistent palea of our plant are specially characteristic of *Eragrostis*.—G. BENTHAM.

Fig. 1. Spikelet. 2, 3. Lower empty glumes. 4. Flowering glume. 5. Palea. 6. Pistil and lodicules. 7. Stamen. 8. Caryopsis.

## PLATE 1372.

**MUNROA SQUARROSA, Torr.**GRAMINEÆ, Tribe FESTUCEÆ (*Seslerieæ*).**M. squarrosa, Torr. Bot. Whipple Exped. 102 (158).**

HAB. North America; Western Texas, New Mexico, Sonora, up to Colorado.

*Gramen* annuum, humile, multicaule, caulibus primariis 2-4-pollicaribus apice fasciculato-ramosis sæpeque fibrilliferis quasi proliferis rigidulis glabris. *Folia* ad basin fasciculorum conferta, linearia, acutissima, rigidula, rarius pollicem excedentia. *Spiculæ* inter foliorum fasciculos paucæ, subsessiles et fere occultæ, sæpius 3-floræ, floribus hermaphroditis, rhachilla supra glumas inferiores articulata, sub quoque flore plus minus elongata. *Glumæ* 2 inferiores vacuæ, sub articulatione persistentes, lanceolatae, acutæ, hyalinae, enerves, muticae; florentes majores, 3-nerves, mucronato-subaristatæ, ad utrumque latus interdum in dentem brevem productæ, superiores vacuæ 1-2, florentibus similes nisi minores. *Palea* hyalina, complicata, anguste 2-carinata, florem amplectens. *Stamina* 3. *Styli* distincti, elongati, a basi laxè breviterque pilosi. *Caryopsis* anguste oblonga, palea multo brevior, libera.

This genus, dedicated to the distinguished agrostologist the late General Munro, is now represented by two or three species from extra-tropical South America, differing from the northern one in a few points of structure, but evidently congeners and with the same habits.—G. BENTHAM.

Fig. 1. Cluster of leaves and spikelets. 2. Spikelet. 3, 4. Outer empty glumes. 5. Flowering glume. 6. The same opened out. 7. Palea. 8. Pistil. 9. Caryopsis

## PLATE 1373.

**FINGERHUTHIA AFRICANA, Lehm.**GRAMINEÆ, Tribe FESTUCEÆ (*Seslerieæ*).

**F. africana, Lehm. Cat. Sem. Hort. Hamb. 1834. F. ciliata and F. sesleriaeformis, Nees, Fl. Afr. Austr. Gram. 136, 138.**

HAB. South Africa, apparently common in the colony from Albany and George districts eastward, and recently found also in Afghanistan by Dr. Aitchison.

*Gramen* caespitosum, erectum, rigidulum, caule foliis glabris.

-2-pedale. *Folia* inferiora conferta breviora, superiora pauca distantia, vagina longa; lamina anguste linearis, plana, acuta v. in acumen subulatum producta, 2-5 poll. longa; ligula brevissima, ciliata. *Spica* terminalis, longe pedunculata, dense cylindracea ei *Phlei* subsimilis, -1½ poll. longa, 4-5 lin. diametro. *Spiculæ* 1- rarius 2-floræ, circa hachin inarticulatam densissime confertæ, singulæ cum pedicello brevissimo articulatae, compressæ, rhachilla ultra florem producta tipitiformi v. glumifera, flore unico v. infimo hermaphrodito, superiore lum adsit masculo. *Spiculæ* infimæ et summæ cujusve spicæ diminitæ, vacuæ v. ad glumas vacuas subulatas reductæ, diu persistentes, perfectæ fructiferæ caduæ. *Glumæ* 2 inferiores vacuæ, complicato-arinatæ breviter aristatæ, parum inæquales, plus minus ciliatæ; tertia lorens vacuis similis nisi paullo latior rigidiorque, arista brevi nunc ad nucronem reducta; terminalis minor, vacua v. paleam solam rarius lorem masculum fovens. *Palea* gluma paulo brevior, subhyalina, 2-carinata. *Stamina* 3. *Styli* distincti, elongati, stigmatibus filiformibus pilis brevibus villosis. *Caryopsis* oblonga, lævis, gluma aleaque laxè inclusa, a palea libera.

This grass is interesting as the only exception to the great series of *Poaceæ* in the articulation of the pedicel below the spikelet, whilst the empty glume or male flower above the fertile one removes it from the *Panicaceæ*. The geographical range is also unusual, for it has never been found in any station intermediate between South Africa and Afghanistan.—G. BENTHAM.

Fig. 1. Spikelet. 2. Outer empty glume. 3. Flowering glume. 4. The same opened out. 5. Palea. 6. Pistil. 7. Caryopsis.

## PLATE 1374.

### DISSANTHELIUM SUPINUM, Trin.

GRAMINEÆ, Tribe FESTUCEÆ (*Eragrostideæ*).

*D. supinum*, Trin. in *Linnaea*, x. 305, humile, dense cæspitosum, panicula brevi dense spiciformi, spiculis 2-floris. *Phalaridium peruvianum*, Nees in Pl. Meyen. 161 *Dissanthelium sclerochloides*, Fourn. Tram. Mexic., 112.

HAB. Andes of Peru and Bolivia, *Lechler*, n. 1832, *Mandon*, n. 1845, apparently at considerable elevations; also in Mexico (*Fournier*).

*Caulis* basi vaginis foliorum obtecti, cum foliis dense cæspitosus -2-pollicares, rarius cum panicula 3-pollicares, glabri. *Folia* angustolinearia, acuta, ligula membranacea 1-2 lin. longa. *Pedunculus* vix

e foliis exsertus v. demum folia breviter superans. *Panicula* oblonga, subpollicaris, densa v. basi paullo latior laxiorque. *Spicula* 2-floræ, rhachilla glabra sub floribus articulata, ultra flores in stipitem minutam producta, floribus hermaphroditis. *Glumæ* 2 inferiores vacuæ, sub articulatione persistentes, lineæ paullo longiores, angustæ, carinatæ, 3-nerves, acutæ, exaristatæ, parum inæquales; florentes multo breviores, latiores, obtusiusculæ, obtuse carinatæ, 3-nerves, nervis lateralibus marginalibus v. interdum obscuris. *Palea* gluma paullo brevior, 2-carinata, 2-dentata. *Stamina* 3. *Styli* brevissimi, stigmatibus plumosis. *Caryopsis* oblonga, subtriquetra, libera.

In this genus the proportion of the lower empty glumes to the following ones is that of the European *Schismus*, but the venation of the glumes places it in a different subtribe. I have not seen any Mexican specimens, but Fournier has identified them with Lechler's, and he describes the spikelets as 2-flowered only, which character distinguishes this species from the Californian one. Mandon's specimens, n. 1346, are probably the same *D. supinum* in a younger state.—G. BENTHAM.

Fig. 1. Spikelet. 2. The same opened out, showing the summit of the rhachilla. 3, 4. Lower empty glumes. 5. Flowering glume. 6. Palea. 7. Pistil and lodicules. 8. Caryopsis.

## PLATE 1375.

### DISSANTHELIUM CALIFORNICUM, Benth.

GRAMINEÆ, Tribe FESTUCEÆ ( *Eragrostideæ* ).

*D. californicum*, Benth., tenue, erectum, panicula longa angusto-laxa, spiculis sæpissime 3-floris.—*Stenochloa californica*, Nutt. in ' Journ. Acad. Philad.' ser. 2, i. 189.

HAB. Islands of the coast of Lower California, Santa Catalina, Gambel; Guadelupe Island, E. Palmer, n. 96.

*Caules* annui, graciles, erecti,  $\frac{1}{2}$ –1-pedales. *Folia* angusta plana, longiuscula. *Panicula* 2–3-pollicaris. *Spicula* quam in *D. supino* paullo majores et in specimine Gambeliano uti in Palmerianis semper 3-floras vidi, a Nuttallio tamen 2-floræ dicuntur. Cætera omnia *D. supini*.—G. BENTHAM.

Fig. 1 Spikelet. 2, 3. Lower empty glumes. 4. Flowering glume. 5. The same laid open. 6. Palea. 7. Pistil. 8 Caryopsis.

# ICONES PLANTARUM.

PLATE 1376.

CRYPTOCHLORIS SPATHACEA, *Benth.*

GRAMINEÆ, Tribe CHLORIDEÆ.

*Cryptochloria*, *gen. nov.*, Char. *gen.* *Spiculæ* 2-floræ (rarius 1-floræ?) secus rhachin continuum spicæ subsecundæ sessiles, 2-seriatim confertæ. *Glumæ* 2 inferiores vacuæ, persistentes, angustissime lineares, complicatæ, glabræ, parum inæquales, spiculam subæquantes, acutæ, muticæ; florentes membranaceæ, late ovatæ, 1-nerves, extus longe ciliatæ, apice minute 2-dentatæ, sub apice dorso arista rigida instructæ; superiores plures vacuæ obovatæ v. subglobosæ, gradatim minores glabrioresque, omnes aristatæ. *Palea* gluma florenti paullo minor, 2-dentata, pilosula, mutica. *Stamina* ... *Stylus* ... *Caryopsis* gluma inclusa, obovoidea, libera.—*Gramen* annuum, nanum, spica simplici densa bractea spathiformi semi-inclusa.

*C. spathacea*, *Benth.*, single species.

**HAB.** Most probably Patagonia, the only specimen known being in a collection made by Capt. Middleton almost entirely in Patagonia, and deposited in Forsyth's Herbarium, though this particular specimen had no locality assigned to it.

*Gramen* annuum, vix 2-pollicare, ramosum, caulibus infra inflorescentiam  $\frac{1}{2}$ –1-pollicaribus, foliis paucis laxè vaginatis, lamina lineari. Bractea spathiformis unica (v. 2?), terminalis, 8–10 lin. longa, latiuscula, membranacea, spicam fere omnino includens. Spica intra bracteam sessilis, setis aristisque glumarum florentium quasi plumosa.

The structure of the spikelets is very nearly that of *Chloris* itself, but they are generally, if not always, two perfect flowers, and the habit is very peculiar.—G. BENTHAM.

Fig. 1. Inflorescence after the fall of the spikelets. 2. Deciduous fertile part of the spikelet. 3, 4. Flowering glumes. 5. Palea. 6. Caryopsis. 7, 8, 9. Upper empty glumes.

## PLATE 1377.

### CRASPEDORHACHIS AFRICANA, Benth.

GRAMINEÆ, Tribe CHLORIDÆ.

*Craspedorhachis*, Benth. gen. nov., Char. gen. *Spicula* 1-floræ, secus rhachin marginatam spicarum unilateralium subsessiles, rachilla brevissima ultra florem non producta, flore hermaphrodito. *Glume* 3, exaristatæ, 2 inferiores vacuæ, persistentes, carinatæ, acutæ, 1-nervæ, rigidule membranaceæ, subæquales, infima rachi contigua, secunda per anthesin patens; tertia florens pluries brevior, lata, subtruncata, tenuissime hyalina, ciliata. *Palea* gluma vix brevior, angustior, tenuissime hyalina, apice breviter 2-fida v. 2-dentata. *Stamina* 3. *Styli* sub anthesi breves, distincti, stigmatibus plumosis. *Caryopsis*...—*Gramen* elatiusculum, foliis paucis angustis. *Spicæ* plures, simplices, secus pedunculum communem sparsæ, erectiusculæ.

*C. africana*, Benth., single species.

HAB. Tropical Africa, on the Zambesi, opposite Senna, J. Kirk.

*Caules* tennes, rigiduli,  $1\frac{1}{2}$ –2-pedales. *Folia* radicalia v. secus caules pauca, vaginis longiusculis striatis; lamina anguste linearis, superius subulato-teres, 3–4-pollicaris; ligula hyalina pluriseta. *Panicula* supra vaginam summam breviter pedunculata, fere semipedalis, rachi communi simplici. *Spicæ* secus rhachin 10–15, inter se parum distantes, summæ 2–3 confertæ, omnes a basi floriferæ, 2–3-pollicares, rachi leviter flexuosæ ad latera acute marginatæ. *Spicula* scæpiis, acrote appressæ, fere 2 lin. longæ.

The genus is in many respects allied in character as well as in habit to the North American *Schedonnardus* figured above (1360), but is readily distinguished by the very small hyaline flowering glume and palea, almost resembling lodicules.—G. BENTHAM.

Fig. 1. Portion of a spike with 3 spikelets. 2. Outer empty glumes. 3, 4. Flowering glume. 5. Palea. 6. Stamen. 7. Ovary and styles.

PLATE 1378.

**SCHAFFNERA GRACILIS**, *Benth.*

GRAMINEÆ, Tribe ZOYSIÆ?

*Schna*, *gen. nov.*, Char. *gen.* *Spiculae* 1-floræ, in pedunculis bus 1-3 subsessiles, articulatae, rhachilla brevissima ultra florem ducta, flore hermaphrodito interdum sterili. *Glumæ* 2, inferior spiculam æquans, co-nervis, 3-5-aristata, aristis lateralibus basi hyalino-appendiculatis, superior florens membranacea, fere brevissima 2-loba, arista inter lobos fere dorsali longiuscula. *Palea* gluma paullo brevior, tenuiter hyalina, 2-nervis, apice v. 2-dentata. *Stamina* 3. *Styli* 2, distincti, elongati, apice plumoso-stigmatosi. *Gramen* humile, annuum. Pedunculi in s foliorum floralium inclusi, inferiores interdum solitarii, ores in vagina 3-∞, fasciculati.

*racilis*, *Benth.*, single species.

1. Mexico; mountains of San Miguelita, in the valley of San Potosi, J. G. Schaffner.

les dense fasciculati, basi ramosi, ascendentes v. erecti, tenues, pillicares, uti tota planta glabri. *Folia* inferiora ad basin ramorum ta, secus caules plura dissita fere omnia floralia; vaginæ rigidulæ, e, 2-4 lin. longæ; laminæ angustæ, interdum subulatæ,  $\frac{1}{2}$ - $\frac{3}{4}$ -pol-; ligulæ lanceolatæ hyalinæ. *Spicularum* fasciculi vix folia nat. *Glumæ* ipsæ vix linea longiores; aristæ sæpe 3-lineares, a, rigidulæ, scabro-denticulatæ. *Caryopsis* in speciminibus vix aucta.

e affinities of this plant are still very doubtful. Although the tare of the spikelets is technically that of *Zoysiæ*, the inflorescence arer to that of some *Andropogoneæ*, and the 3- or 5-awned empty as remind one of *Pappophoreæ*.—G. BENTHAM.

1. Cluster of 3 peduncles, each bearing 2 or 3 spikelets. 2. Peduncle with eta. 3. Peduncle with 2 spikelets. 4. Single spikelet. 5. Empty glume. vering glume. 7. Palea. 8. Ovary and styles.



## PLATE 1379.

## CLEISTACHNE SORGHOIDES, Benth.

GRAMINEÆ, Tribe TRISTEGINEÆ.

*Cleistachne*, Benth. gen. nov., Char. gen. *Spiculæ* 1-floræ, oblongæ, secus paniculæ ramos capillares inarticulatos dissitæ, in pediculis articulatæ, flore hermaphrodito. *Glumæ* 4, 2 inferiores vacuæ, subæquales, latæ, rigidæ, acutiusculæ, muticæ, plurinerves, circa flores convolutæ, clausæ; tertia subbrevis, vacua, angusta, hyalina v. superne membranacea villosaque; quarta sub flore a basi minima hyalina in aristam longam rigidam tortam producta. *Palea* minima, hyalina truncata ciliata; lodiculæ majusculæ. *Stamina* 3. *Styli* distincti, stigmatibus plumosis. *Caryopsis* oblonga, glumis inferioribus rigidis coriaceis arcte inclusa.—*Gramen* elatiusculum, foliis longis planis. *Panicula* anguste thyrioidea, floribunda, pilosa, ramulis erectis flexuosis.

*C. sorghoides*, Benth., single species.

HAB. Tropical Africa, Shubanga, on the Zambesi, J. Kirk; and perhaps a variety with rather smaller spikelets, East Indian Peninsula, Bababoodun hills, Malabar, Law.

*Caules* fide Kirkii 7-pedales, rigiduli. *Folia* pauca, vaginis longis sparse setiferis; lamina plana, pedalis v. longior, breviter subulato-acuminata; ligula brevis, ovata v. lata, brunnea. *Panicula* super folium summum breviter pedunculata, 6-10-pollicaris, angusta, densa, ramis ramulisque numerosis 1-2-pollicaribus v. interdum parvis longioribus. *Spiculæ* brevissime pedicellatæ, oblongæ, 2-lin. longæ, dorso pilosæ; aristæ  $\frac{1}{2}$ -1-pollicares.

This plant at first sight resembles some specimens of *Sorghum fulvum*, but the total absence of the second spikelet (whether perfect or rudimentary) to each node or notch removes it from the *Andropogoneæ*, and brings it into connection with *Arundinella*. The spikelets in the East Indian specimens are rather darker coloured and perhaps smaller than in the African ones, but I can find no other difference.—G. BENTHAM.

Fig. 1. Branch of the panicle. 2, 3. Outer empty glumes. 4. Third empty glume. 5. Flowering glume. 6. Palea. 7. Lodicules. 8. Ovary and styles.

PLATE 1380.

CYPHOSTIGMA PULCHELLUM, Benth.

SCITAMINEÆ, Tribe ZINGIBEREÆ.

*phostigma*, Benth. gen. nov., Char. gen. Calyx supra basin atam tubulosus, per anthesin spathaceo-fissus. Corollæ tubus 3, e calyce breviter exsertus; lobi 3, anguste oblongi, subæquales, cito-patentes. Stammodia lateralibus 0; labellum orbiculato-reniforme, obscure 3-lobum, lobo medio magis prominente sub-2-lobo; ra in filamento brevi erecta, loculis parallelis v. apice parum gentibus, connectivo angusto ultra loculos in cristam semialatam petaloideam margine crenulato-crispam dilatato. Ovarium altem 3-loculare; stylus filiformis, stigmate exserto crasso oblongo ostice gibbo circa foveolam terminalem ciliolato; ovula in quoque plurima, sub-2-seriata. Fructus ...—Rhizoma horizontale. ram vaginæ longæ convolutæ caulem simulant. Scapi florentes li, e rhizomate ad basin foliorum elongati, procumbentes, ramulosi, us in ramulis sparsis.

*pulchellum*, Benth., single species. *Amomum pulchellum*, Thwaites, l. Pl. Zeyl. 318.

3. Ceylon; forests of the Central Province, up to an elevation 900 feet, Thwaites, C.P., n. 2736.

rhizoma durum, breve, horizontale. Folia pauca; vaginæ compli-convolutæ, striato-venosæ venulis transversis interdum quasi atæ, columnam cauliformem  $\frac{1}{2}$ -pedalem formantes; petioli supra am 1-3-pollicares, lamina oblonga,  $\frac{1}{2}$ -2-pedalis, præter costam s pilosulam glabra. Scapi florentes  $\frac{1}{2}$ -1-pedales, procumbentes, si, fere a basi floribundi, ramulis nunc brevissimis nunc 2-3-pollicibus. Bractee vaginantes ad basin ramulorum et florum confertæ v. neo imbricatæ. Flores ad axillas bractearum breviter pedicellati. a tubus ad 9 lin. longus, lobi vix breviores, extus puberulæ, e, venis 3 fulvis. Labellum et antheræ crista inter se fere a, rosea, ad apicem antheræ horizontaliter patentia, 9-10 lin. Stylus supra antheram brevissime exsertus.

plant was placed by Thwaites in *Amomum* on account of the crest or appendage to the anther, but in the large genus *Amomum*, so constant in its inflorescence, a dense erect spike with late bracts, the appendage to the anther is exceedingly variable, metimes disappears entirely; and inflorescence appears generally afford one of the best generic characters in the order, and here

it appears to be accompanied by a peculiar stigma, and the remarkable shape given to the flower by the broad, equally-spreading labellum and anther-appendage. The inflorescence approaches that of the *Elettaria Cardamomum*. Miss Smith's drawing is made up partly from a series of excellent specimens received from Mr. Thwaites, partly from a coloured drawing taken by him from living specimens.—G. BENTHAM.

Fig. 1. Anther. 2, 3. Stigma. 4. Ovary. 5. The same, transverse section.

## PLATE 1381.

### ERAGROSTIS WIGHTIANA, Benth.

GRAMINEÆ, Tribe FESTUCEÆ.

*E. (Myriostachya) Wightiana, Benth.* Erecta, elata, longifolia, panicula angusta, dense thyrsoides, ramulis numerosissimis quamvis confertis, spiculis breviter pedicellatis 4–6-floris, glumæ 2 exterioribus vacuis parvis in aristam v. mucronem longum desinentibus, florentibus majoribus breviter mucronato-acuminatis. *Leptochloa Wightiana*, Nees in Steud. *Syn. Glum.* i. 209.

HAB. East India, East Bengal, Griffith; Sunderbunds, Wall. *Herb. Ind.* n. 3823.

*Caulis* validus, pluripedalis, uti tota planta glaber. *Folia* longius erecta, rigidula, e basi latiuscula longe subulato-acuminata. *Panicle* 1–2-pedalis, cylindræa; ramis confertis 1–2-pollicaribus erectis patentibus simplicibus v. parce ramulosis, rhachi glabra v. minute pubescente. *Pedicelli* breves, filiformes. *Spiculæ* 3–4 lin. longæ. *Glumæ* florentes  $1\frac{1}{2}$  lin. longæ, rigidulæ, carinatæ, 3-nerves, brevis mucronatæ, 2 exteriores vacuæ vix lineam longæ sed sæpius in aristam subsuperantem desinentes, summæ vacuæ 1–2, parvæ.

This species has so peculiar an inflorescence that it is at first difficult to admit it into the genus; it is, however, in some measure connected with it through the *E. cynosuroides*. It has nothing of the chlorideous inflorescence characteristic of *Leptochloa*. Several specimens are affected with a peculiar gall, forming here and there nodes in the panicle.—G. BENTHAM.

Fig. 1. End of a branch of the panicle. 2, 3. Outer empty glumes. 4. Flag glume. 5. Palea. 6. Young caryopsis.

PLATE 1382.

**PSEUDOCENTRUM MINUS, Benth.**

ORCHIDEE, Tribe NEOTTIEÆ.

*P. minus*, Benth. *sp. n.*, perianthio laxe pilosulo, mento lineari clauso ovario æquilongum v. vix longiore.

HAB. Jamaica, Portland Gap, at an elevation of 5,400 feet, *D. Morris*.

*Fibræ radicales* in rhizomate brevi fasciculatæ, carnosulæ. *Caulis* erectus, simplex, cum spica pedalis v. paullo altior. *Folia* 2-3-inferiora subradicalia v. prope basin caulis, supra vaginam brevem longiuscule petiolata, ovato-lanceolata v. oblonga, acutiuscula v. obtusa, 3-5-pollicaria, 1-2 superiora multo minora, subsessilia, basi vaginantia. *Spica* densa, 3-6-pollicaris, floribus quaquaversis ad axillas bractearum lanceolarum subsessilibus erecto-patentibus, pilis crispulis laxè vestitis. *Ovarium* cylindraceum, basi attenuatum, vix 5 lin. longum. *Sepalum* posticum (inferum) patens, lato-lanceolatum, ovario plus duplo brevius; lateralibus in mentum seu tubum cylindraceum ascendens ovario æquilongum connata, ad marginem tubi in limbum patens emarginatum brevissime expansa. *Petala* sepalo postico limbidio breviora angustioraque, patentia. *Labellum* ad basin columnæ sessile, ad os menti in lobis 2 breves falcatos divisum, intra mentum in laminam longe linearem in fundo menti lobo inflexo clausam productum. *Columna* brevissima; clinandrium membranaceo-2-lobum. *Anthera* inter lobos clinandri brevissime stipitata, erecta, 2 locularis; pollinia in loculis gemina, pulvereo-granulosa, acuminata. *Stigma* concavum ad apicem truncatum columnæ pone rostellum breviter lineare, glandula terminatum.

The habit and essential character are entirely those of the original *P. macrostachyum*, Lindl., from New Grenada, which, however, has larger, more glabrous flowers with the sepaline mentum twice as long as the ovary and some other differences in the details of the flowers. —G. BENTHAM.

Fig. 1. Flower. 2. Labellum. 3. Column and anther-case. 4. Anthers. 5. Pollen masses.

## PLATE 1383.

**PHEROSPHERA FITZGERALDI, F. Muell.**

CONIFERÆ, Tribe TAXEÆ.

**P. Fitzgeraldi**; monoica, foliis ericoideis decurrenti-adnatis erecto-incurvis crasse subulatis obtusis v. mucronulatis dorso rotundatis v. obscure 3-gonis facie leviter conversis, staminum columna ovoides sessili, connectivo oblongo apice rotundato loculis basilaribus squilatis, amentis ♀ paucifloris erectis, squamis subulato-lanceolatis acutis ~~facie~~ exsculptis, semina ellipsoidea erecta paullo superantibus, testa coriacea obtuse 3-costata.

*P. Fitzgeraldi*, F. Muell, MS. *Dacrydium Fitzgeraldi*, F. Muell, *Fragm. Phytogr. Austral.*, xi. p. 102.

**HAB.** New South Wales, in dense woods of the Blue Mountains, near the Katoomba Falls, *R. Fitzgerald, &c.*

*Frutex* flaccidus, ad 9-pedalis, ramis infimis prostratis radicanlibus. *Folia* laxè imbricata,  $\frac{1}{2}$ — $\frac{1}{6}$  poll. longa, pallide viridia, coriacea, enervia. *Columna staminum*  $\frac{1}{2}$  poll. longa; antheræ 12–16, ~~lax~~ imbricatæ, dorso connexæ, loculis contiguis hiantibus. *Ament* *squamæ* 3–6, foliis paullo longiores, suberectæ, lamina ovulifero & *Ovulum* facie squamæ basin versus insertum, erectum.

In the total absence of an ovuliferous disk, this plant differs from *Dacrydium*, and agrees with *Pherosphaera*, of which a single Tasmanian species was previously known, thus tending to confirm this genus (which was considered as somewhat dubious in the 'Genera Plantarum') by the addition of a species from a widely distant locality. Baron von Mueller, to whom I am indebted for the specimen of *P. Fitzgeraldi* here figured, suggests ('Fragmenta,' *l.c.*) that *Dacrydium Kirkii* of New Zealand, having 'an often evanescent disk,' may be a congener; but this latter plant is so clearly a *Dacrydium* in habit and in the form of the scales and fruit that it rather tends to suppress *Pherosphaera*, or to establish it on other characters, than to so enlarge it as to include *D. Kirkii*.—J. D. HOOKER.

Fig. 1. Leaves and staminal column. 2. Anther. 3. Leaves and ♀ cone. Scale and young seed. 5. Vertical section of immature seed. *All enlarged.*

PLATE 1384.

CAMPYLOSIPHON PURPURASCENS, *Benth.*

BURMANNIACEÆ.

*Camphylsiphon*, *gen. nov.*, Char. gen. *Perianthii* tubus tenuis, incurvus, exalatus; lobi 6, 2-seriati, omnes angusti, parum inæquales. *Antheræ* 3, intra tubum infra lobos inferiores subsessiles, connectivo latiusculo supra loculos non producto, loculi ad latera connectivi prominentes, transversim in valvas 2 superpositas dehiscentes. *Ovarium* inferum, elongatum, 3-loculare, 6-costatum; stylus perianthio inclusus, apice clavatus, in lobos 3 latos subdivisus; ovula in placentis axilibus numerosissima. *Capsula* angusta, incurva, exalata, perianthio marcescente coronata. *Semina* numerosissima, angustato-globosa, testa appressa.—*Herba* tenuis succulenta, aphylla. *Flores* in racemo terminali simplici v. bifido breviter pedicellati.

*C. purpurascens*, *Benth.*, single species.

**HAB.** North Brazil and Venezuela, on tree-roots in moist Catingas at Panuré, on the Rio Uaupès and San Carlos on the Rio Negro, *R. Spruce*, n. 2492; forest behind Manaos on the Amazon, *J. W. H. Traill*, and apparently the same species, Polaro river, British Guiana, *E. F. in Thurn*.

*Herba* annua (v. e rhizomate perenni?), semipedalis v. paullo altior, pallide purpurascens, caule simplici v. basi duplicato erecto, squamis sparsis concoloribus erectis breviter vaginantibus instructo, superioribus paullo longioribus in bracteas flores subtendentes abeuntibus. *Flores* in racemo pauci, breviter pedicellati, pallide purpurascens subcæruleascentes v. in planta Guianensi albidæ. *Perianthium* cum ovario 9-11 lin. longum, tenue, incurvum, limbi lobi lineari-lanceolati, acuti, ad 3 lin. longi, interiores exterioribus paullo angustiores. *Antheræ Burmanniæ*, loculis insigniter prominentibus, valvis dehiscentia omnino discretis. *Styli* apex insigniter incrassatus, lobis latis crenatis.—**G. BENTHAM.**

Fig. 1. Portion of the perianth-tube and four of the lobes, opened out showing two of the anthers. 2, 3. Anthers open, showing the two valves of each cell. 4. Apex of the style. 5. Ovary, transverse section. *All magnified.*

## PLATE 1385.

## HELIETTA PARVIFOLIA, Benth.

RUTACEÆ, Tribe TODDALIÆ.

*H. parvifolia*, Benth., foliolis oblongis v. anguste obovatis obtusis, terminali  $\frac{1}{2}$ -1 $\frac{1}{2}$ -pollicari, lateralibus multo minoribus, panicula subsessili petiolos foliorum terminalium vix excedente, floribus 4-meris.

HAB. Mexico, State of Nuevo Leon, near Monterey, *Berlandier*, n. 1404 (144); *E. Palmer*, n. 142; and State of Coahuila, 24 miles N.E. of Monclova, *E. Palmer*, n. 143, 144.

*Frutex* ramosissimus, glaber. *Folia* opposita, 3-foliolata; foliola ad apicem petioli 4-8 lin. longi sessilia, terminale nunc angustius oblongum 1-1 $\frac{1}{2}$  pollicare basi longiuscule angustatum, nunc obovatum vix semipollicare, lateralia sæpius dimidio minora basi obliqua, omnia integerrima, punctis pellucidis parvis in folio juniore minutis conspersa. *Panicula* v. cyma trichotoma inter folia parvis ultimis brevissime pedunculata, parva, pauciflora, rarius petiolos breviter superans. *Pedicelli* brevissimi, minute 2-bracteolati. *Sepala* 4; parva. *Petala* 4, sepalis 2-3-plo longiora, leviter imbricata. *Stamina* 4 circa discum cyathiformem truncatum affixa. *Ovarium* 4-lobum, 4-loculare. *Ovula* in quoque loculo 2, collateralia. *Stylus* tenuiter columnaris, stigmate capitato 3-sulco. *Fructus* e carpellis 4 samaroides ante maturitatem coherentes radiatim patentibus maturitate solvendis indehiscentibus; samaræ singulæ nucleo oblongo erecto dorso 3-5 lin. longo, in alam subsemipollicarem rigidulam late ovatam v. rotundatam a latere producta. *Semen* unicum, oblongum, lateraliter affixum; embryo in albumine carnoso axillis, rectus, radícula brevi supera.

This plant was originally sent by Asa Gray with loose fruits received as belonging to it, which proved to be those of a *Ptelea*, and induced Helmsley to describe it in the 'Botany of Central America,' i. 170, as *Ptelea parvifolia*, A. Gray. Palmer's specimens, however, both in flower and with the fruit attached, show that the real fruits as well as the flowers correspond in every respect with the detailed character of the genus *Helietta* given by Tulasne in the 'Ann. Sa. Nat.' ser. 3, vii. 280. Tulasne's original species, *S. Plœana* from New Grenada, of which we have probably rather imperfect specimens gathered by Triana, differs chiefly in the thinner leaflets fully twice the size of those of *S. parvifolia*, and the looser panicle with smaller flowers. A third species was gathered by Balansa in Paraguay and distributed under n. 2515, described as a small tree. It is near *S. parvifolia*, but

lets are longer, remarkable for the rigid point terminating them, with looser panicles, the flowers all 5-merous, but agreeing in all respects as well as the fruits with those of the *H. parvifolia*. It is thus characterised: *H. apiculata*, Benth., foliolis ellipticis aut lanceolatis ( $1\frac{1}{2}$ –2-pollicaribus) mucrone rigidulo apiculatis, a laxa floribunda folia subæquante, floribus fructibusque . Asa Gray has thought that the whole genus might be with *Choisya*, but, besides the stamens equal in number to and ble those of the parts of the flower, the small flowers in a stely trichotomous panicle give it a very different aspect, and fruit of *Choisya* is as yet unknown.—G. BENTHAM.

Flower. 2. Stamens, disk, and pistil. 3. Stamens. 4. Ripe carpel, al section, with the base of the wing. 5. Embryo. 6. Flower bud.

PLATE 1386.

NIEBUHRIA WOODII, Oliv.

CAPPARIDACEÆ.

*Woodii*, Oliv. sp. nov., glabra, foliis 3–5-foliolatis, foliolis elliptico-lanceolatisve acutatis mucronulatis coriaceis venulis prominentibus, floribus in ramis annotinis fasciculatis, pediculis ovario ellipsoideo v. obovoideo glabro longitudinaliter 4-costato subgloboso.

. Inanda, Natal, J. M. Wood, n. 930.

tes 5–8 pedalis, ramis virgatis teretibus cortice lævi. Folia a petiolata; petiolis subteretibus 2–4 poll. longis; foliolis 4–7 longis  $1\frac{1}{2}$ –2 $\frac{1}{2}$  poll. latis, lateralibus minoribus, basi plus minus tatis breviter petiolulatis. Flores fasciculati v. in racemis sessilibus liformibus dispositi; pedicellis  $\frac{1}{4}$ – $\frac{1}{3}$  poll. longis; bracteis is subulatis. Calyx campanulatus profunde 4-fidus basi obtusus : intrusus, lobis ovato- v. oblongo-ellipticis obtusiusculis breviter atis. Petala 0. Stamina circ. 13 in toro parum elevato inserta; ntis gracilibus glabris, antheris basifixis ellipsoideis. Ovarium stipitatum exsertum, stylo brevissimo deinde incrassato, stigmehemisphærico bilobulato; ovula 10–12 vel pauciora. Fructus bosus sublævis,  $\frac{1}{2}$  poll. diam.; gynophoro fructifero  $\frac{1}{2}$ – $\frac{3}{4}$  poll. — D. OLIVER.

1. Flower laid open. 2. Calyx, enlarged. 3, 4. Anthers. 5. Ovary and Transverse section of ovary. 7. Fruit and gynophore.



## PLATE 1387.

## SIMARUBA MONOPHYLLA, Oliv.

SIMARUBACEÆ, Tribe SIMARUBEÆ.

**S. monophylla**, Oliv. *sp. nov.* Frutex 1-3 pedalis, glaberrima, foliis simplicibus oblanceolato-oblongis obtusissimis integerrimis coriaceis lævibus brevissime petiolatis, paniculis sæpius pedunculatis terminalibus foliis brevioribus, floribus polygamis.

HAB. Kaieteur Savannah, Potaro river, British Guiana, G. & Jenman, Sept. and Oct. 1881.

Frutex cortice nigrescente sæpe rimoso glaberrimo in ramulis ultimis nitente. Folia  $1\frac{1}{2}$ -3 poll. longa,  $\frac{5}{8}$ - $1\frac{1}{4}$  poll. lata, coriacea, costa supra leviter depressa, venis inconspicuis; petiolus brevissimus crassiusculus corticatus. Flores polygami breviter pedicellati, pedicelli flore æquilongi v. breviores. Calyx parvus 4-fidus, lobis deltoideis ovatisve acutis. Petala 4 oblongo-elliptica minutissime puberula, æstivatione imbricata  $\frac{1}{2}$ - $\frac{1}{4}$  poll. longa. Stamina 8, appendicula basilari truncata v. lobulata intus pilosula; filamenta glabra subulata; antheræ dorso affixæ late ellipticæ basi profunde bifidæ. Ovarium glabrum 4-lobatum, in toro breviter elevato impositum; ovula solitaria pendula; stylus ovario 1-2 plo longior apice 4-dentatus.

I leave this plant in *Simaruba* rather than in *Simaba* on the ground of the imbricate æstivation of the corolla. I find, however, in the unifoliate *Simaba obovata*, Spruce (Engler, in *Mart. Fl. Bras. xii* par. 2. p. 210), that the æstivation is also imbricate, and I cannot doubt the two plants are congeneric.—D. OLIVER.

Fig. 1. Bud. 2. Expanded flower. 3, 5. Stamens and appendage. 4, 6. Calyx and pistil. 7. Ovule *in situ*.

## PLATE 1388.

## APODOLIRION BUCHANANI, Baker.

AMARYLLIDACEÆ, Tribe AMARYLLIDÆ.

**A. Buchanani**, Baker in *Trimen Journ.*, 1875, 75; foliis hysteranthiis, perianthii tubo limbo æquilongo, limbi segmentis oblanceolatis acutis, antheris 3 ad tubi faucem insertis filamentis brevissimis, 3 ad segmentorum ungues adnatis filamentis longioribus.

Barren plains of Natal, *Rev. J. Buchanan*.

*ovatus* globosus 1 poll. diam., tunicis pallidis membranaceis circiter 1-2 poll. longum productis. *Folia* ignota. *Pedunculus* brevis. *Spatha* membranacea cylindrica 1 poll. longa apice fissa. *thii* tubus gracilis cylindricus  $1\frac{1}{2}$ -2-pollicaris: limbi segmenta rubella 18 lin. longa 2-3 lin. lata subtiliter multinervata supra basin ad basin sensim attenuata. *Antheræ* albidæ lanceolatæ 3 lin. 3 ad tubi faucem subsessiles, 3 supra basin segmentorum, filamentis filiformibus antheris subæquilongis. *Stylus* filiformis exsertus, stigmate capitato, obscure to.—J. G. BAKER.

Flower cut open, shewing segments and upper half of tube, *nat. size*.  
 3. Stigma and upper part of style, *enlarged*.

# PLATE 1389.

## LEONTOCHIR OVALLEI, *Phil.*

AMARYLLIDÆ, Tribe ALSTROMERIEÆ.

*Ovallei*, *Philippi*, *Descr. Nuev. Pl. ii.* (1873), 69, single species.

*Chili*, rather common about El Huasco, Carrizal and other parts of the province of Atacames, where it is known by the name of *de Leon* (Lion's paw), whence the generic name, *Philippi*, *T. King*; Conception, *Bridges*, n. 1377.

*radicales fasciculatæ, irregulariter tuberculosæ. Caulis* erectus, subflexuosus, simplex, sub-2-pedalis, undique foliatus, uti tota planta glaber. *Folia* sparsa, quaquaversa, approximata, patentia v. sessilia, oblongo-lanceolata, acuminata, basi in petiolum brevissimum breviter contracta, majora 3-4-pollicaria, superiora gradatim minora, minima interdum ad squamas breves reducta. *Umbella* terminalis, in capitulum condensata, floribus in receptaculo crassiusculo breviter pedicellatis v. interioribus sessilibus, bracteis parvis inclusis. *Perianthii* segmenta 6, subæqualia, persistentia, usque ad medium discreta sed cum glandula epigyna parum prominente contracta, spatulata,  $\frac{3}{4}$  poll. longa, in unguem longiusculum erectum contracta, lamina lata erecto-patente. *Stamina* 6, glandulæ epigynæ inclusæ, segmentis opposita iisque triente breviora, filamentis filiformibus alternis paullo latioribus. *Stylus* subulatus, stigmatibus 3 inclusis patentibus. *Ovarium* inferum, 1-loculare, placentis 3 parie-

talibus. *Ovula* numerosa, 2-seriata. *Capsula* coriacea, triquetra-turbinata, 4-5 lin. longa et lata, apice breviter connata et reliquis glandulæ epigynæ sub segmentis persistentibus annulata, demum in valvas 3 medio placentiferas dehiscens. *Semina* parva, subglobosa, testa appressa; embryo in albumine duriusculo parvus.

The genus is closely allied to *Bomarea*, but is well distinguished by the dense inflorescence, the shape of the perianth segments (said by Philippi to be fleshy) and especially by the one-celled ovary and capsule.—G. BENTHAM.

Fig. 1. Flower. 2. Ovary and style. 3. Ovary, transverse section. 4. Capsule. 5. Seed. 6. Vertical section of the seed, showing the embryo.

## PLATE 1390.

### COLA NATALENSIS, Oliv.

STERCULIACEÆ, Tribe STERCULIÆ.

*C. Natalensis*, Oliv. *sp. nov.*, foliis integris oblongo-oblanccolatis obtuse acuminatis basi angustatis sæpe obtusis longe petiolatis, floribus ♂ axillaribus pedicellatis fasciculatis v. solitariis, calyce 5-(6-) partito v. profunde lobato lobis oblongo-ellipticis extus et intus apices versus stellato-hirsutis, androphoro glabro calyce brevior, antheris annulatim capitatis locellis parallelis uniseriatis: fl. ♀ carpellis dense hirsutis, stylis apice recurvis stigmate papilloso antice leviter decurrente; carpellis fructiferis obovoideis basi breviter angustatis breviter cinnamomeo-tomentosis.

HAB. Inanda, Natal, *J. M. Wood*, n. 321.

*Arbor*; ramulis teretibus glabris. *Folia*  $3\frac{1}{2}$ -7 poll. longa  $\frac{1}{2}$ -2 poll. lata, costa venisque subtus prominulis: petiolus  $\frac{1}{2}$ -2 poll. longus apice leviter incrassatus. *Flores*  $\frac{1}{2}$ - $\frac{3}{4}$  poll. diametro. *Carpella* fructifera 4-5,  $\frac{3}{4}$ -1 poll. longa,  $\frac{3}{4}$ - $\frac{1}{2}$  poll. lata.

Allied to two or three species, occurring in tropical Africa, but with good specific distinctions. It differs from the common Kola Nut, *C. acuminata*, in the uniseriate parallel anther-cells. It is another of the interesting discoveries made by Mr. Wood in Natal.—D. OLIVER.

Fig. 1. Staminate flower. 2. Androphore and anthers. 3. Detached anthers. 4. Pistillate flower. 5. Pistil. 6. Three carpels of fruit.

PLATE 1391.

**PETERMANNIA CIRROSA, F. Muell.**

DIOSCOREACEIS AFFINIS.

**P. cirrosa, F. Muell. in Benth. Fl. Austral., vi. 462, single species.**

**HAB.** Australia, Macleay river, New South Wales, C. Moore; Clarence river, Beckler.

*Caules* scandentes, 15-20-pedales, ramosi, obtusanguli, aculeolis minimis sæpe scabri. *Folia* oblongo-lanceolata v. ovato-lanceolata, 2-4-pollicaria, acuminata, basi cuneata, petiolo brevi interdum torto, rigidule membranacea, scabriuscula, venis primariis plurimis subtus elevatis basi cum costa plus minus confluentibus. *Panicula* v. cymulae laxæ, paucifloræ, breviter pedunculatæ, foliis oppositæ iisque sæpius breviores, inferiores sæpe steriles in cirros tortuosos ramosos mutatos. *Pedicelli* secus ramulos inflorescentiæ solitariæ v. geminæ, recurvæ, 1-3-lineares. *Bractea* primariæ parvæ, adnatæ, bracteolæ minimæ. *Flores* hermaphroditi. *Perianthium* supra ovarium fere ad basin 6-partitum, segmentis oblongis petaloideis patentibus reflexis subæqualibus v. interioribus vix angustioribus ad 2 lin. longis. *Stamina* 6, basi perianthii affixa, filamentis erectis brevibus, antheræ oblongæ, erectæ, loculis extrorsum dehiscentibus. *Ovarium* inferum, ovoideum, 1-loculare, placentis 3 parietalibus; stylus tenuiter columnaris, stigmate capitato, ovula in quaque placenta plurima, 2-seriata (anatropa?). *Fructus* (vix maturus) baccatus, 2 lin. diametro. *Semina* plurima.

The excellent flowering specimens received from Mr. Moore, of Sydney, since the publication of the sixth volume of 'Flora Australiensis,' have enabled me to complete the generic character, but the natural order to which the plant should be referred remains very doubtful. The habit is rather that of *Smilacææ*, with the inferior ovary of *Dioscoreaceæ*, and the unilocular ovary with parietal placentation is anomalous in both orders.—G. BENTHAM.

Fig. 1. Flower-bud. 2. Open flower. 3. Stamens. 4. Style. 5. Ovary, transverse section.

## PLATE 1392.

## RAJANIA HASTATA, Linn.

## DIOSCOREACEÆ.

*R. hastata*, Linn. *Spec. Pl.* 1461, foliis hastatis v. triangulari-latis, floribus masculis subsessilibus, samaris parvulis.—*Plum. D Pl. Amer.*, i. 98.

HAB. West Indies, San Domingo, *Plumier*; Cuba, *Poe Wright*, n. 1712, and apparently the same, Bahamas, *L. Brace*.

*Glabra*, dioica. *Caulis* tenuis, alte volubilis. *Folia* variant, anguste hastata 1-1½-pollicaria, nunc late hastato-deltoidæa 3-4-pollicaria, 5-7-nervia. *Racemi* utriusque sexus axillares, tenues, 1-pollicares, simplices v. parce ramosi, solitarii v. 2-3-fasciæ masculi fere a basi floribundi, floribus subconfertis brevissime cellatis v. sessilibus; fæminei longiores floribus distinctius cellatis. Fl. ♂ : *Perianthium* late campanulatum, expansum 1 diametro, ad medium 6-fidum. *Stamina* 6, subæqualia, tubo lobos affixa iisque multo breviora. *Pistilli* rudimentum in cæ floris pulvinatum. Fl. ♀ : *Perianthium* supra ovarium minus, 6-partitus, persistens. *Staminodia* 0 v. minuta. *S* breviter columnaris, apice in stigmata 3 2-fida patentia divisa. *Samara* cum ala oblique ovata, 5-7 lin. longa, 2-3 lin. lata, uno lobo prope basin carpellorum abortivorum rudimentis quasi articulis. *Semen* (*Dioscoreæ*) planum, latum; embryo parvus inter albas laminae arcte inclusus, a hilo parum remotus.

Three species of *Rajania* have been well figured by Plumier as the general outline, but the details of structure have never been represented. The male flowers are precisely those of the typical fruit of *Dioscorea*, and from male specimens alone two or three Bracteate true *Dioscoreas* have been published as *Rajanias*. This genus appears to be strictly limited to the West Indian Islands.—G. BENTHAM.

Fig. 1. Male flower. 2. The same opened out. 3. Stamens. 4. Female flower. 5. Style. 6. Fruit (samara). 7. Seed. 8. The same, longitudinal section, showing one lamina of the albumen and the embryo.

PLATE 1393.

SOYAUXIA GABONENSIS, Oliv.

PASSIFLORACEÆ.

*soyauxia*, Oliv. gen. nov. Flores hermaphroditi, spicati. *Calyx* brevissimo ovarium arcte cingente, limbo 5-partito patente, lobis adatis obtusis concavis. *Petala* 5 perigyna obovata calyce paullo ora. *Stamina* numerosissima libera perigyna calycis faucibus; filamenta filiformia; antheræ rotundato-quadratae 4-locellatae. *sa* disciformis brevissima tubo calycis inserta faucem ejusdem ex superans truncata subintegra. *Ovarium* liberum hirsutum rotundatum 1-loculare; ovula 6 (3 × 2) pendula. *Styli* 3, a basi liberi rines divergentes; stigmata minuta. *Fructus* 0.—*Arbor* 15–17 ped. *l* alterna oblongo-elliptica acuminata breviter petiolata, stipulata. *e* axillares sæpius geminatae folio breviores 8–15-floræ, ferrugineo-hirtæ.

*gabonensis*, Oliv., sp. unica.

18. Gaboon, H. Soyaux, n. 48, 1879.

*rami* subteretes ferrugineo-hirtelli v. pilosuli. *Folia* 3½–5½ poll. long., 1½–2 poll. lata, integerrima membranacea supra glabrescens infra pilosula v. pubescens costa venulisque secundariis conspicuis: nervus ½–¾ poll. longus: stipulae caducae. *Spicae* floriferae 2½–3 poll. longae pilosulae. *Flores* subsessiles; bractea caducae; calyx extensus sericeo-hirsutis; petala dense sericea.

fruit I have not seen. This interesting novelty belongs to a group of *Passifloreae* almost confined to West Tropical Africa, and I propose may be regarded as connecting these with *Samydaceae* through *Dissomeria*.

mons. Soyaux, now settled in the Gaboon, well deserves that his name should be associated with one of his interesting discoveries in this region. If he can supply fruiting specimens to his Berlin correspondents, who most liberally allow us to share his collections, it would enable us to complete the description of *Soyauxia*.—  
OLIVER.

g. 1. Flower, from above, after removal of petals and stamens. 2. Calyx-tube, external, back of. 4. Anther, back and front. 5. Transverse section of ovary, showing 5 of the ovules suspended in its cavity. 6. Longitudinal section of ovary; styles remaining.

## PLATE 1394.

## EPALLAGE DENTATA, DC.

COMPOSITÆ, Tribe HELIANTHOIDEÆ, Sub-tribe VERBESINÆ.

*E. dentata*, DC. *Prod.* vi. 4, herbacea, caule erecto ramoso cente, foliis alternis petiolatis ovato-delloideis lanceolatisve imliter et sæpe grosse dentatis acutiusculis, basi late cuneatis trunc involucri squamis ovali-oblongis hirtis acutis interioribus longioribus.

HAB. Madagascar, central region. Received recently from R. Baron and Dr. G. W. Parker.

*Herba* annua sæpius ramosa 1-2 pedalis, interdum depauperata subsimplice  $\frac{1}{2}$ - $\frac{1}{2}$  ped. *Folia* sparse villosula, lamina  $\frac{3}{4}$ -1 poll. petiolus  $\frac{1}{4}$ - $\frac{1}{2}$  poll. longus. *Capitula* hemisphærica  $\frac{1}{4}$ - $\frac{1}{2}$  poll. pedunculata cymosa laxè paniculata; involucrium hirtum, squamulis pauci-seriatis; receptaculum paleis oblongis oblanceolatisve acuminatis utrinque dentatis v. incis. *Corollæ* ligulatae flavae lamina ovata v. elliptica, interdum parva inconspicua, disci tubus parce glandulosus basi breviter ampliatus. *Antheræ* basi bidentatae. *Achenia* angustata, costis primariis 5, appresse setulosa; pappus aristatus cum squamellis intermediis incis. — D. OLIVER.

Fig. 1. Ray floret. 2. Scale of receptacle. 3. Disc floret. 4. Anther. 5. Branches. 6. Achene.

## PLATE 1395.

## RHIPOGONUM SCANDENS, Forst.

SMILACÆ.

*R. scandens*, Forst., Poir. *Dict.* vi. 212, floribus paniculatis, perianthii segmentis quam stamina multo brevioribus, stylo vix ovario brevior, ovarii localis (an semper?) 2-ovulatis. — A. DC. *Monogr.* i. 2 Hook. f. *Handb.* N. Zeal. Fl. 281.

HAB. New Zealand; northern and middle islands abundant, J. Hooker and others; Chatham Island, F. Mueller.

Caulis alte scandens, ramosus, lævis v. demum scabriusculus, uti et planta glaber. *Folia* opposita v. rarissime cujusve paris inter se parum distantia, ovali-oblonga, obtusa acutiuscula v. brevissime acuminata, 2-4-pollicaria, rigidula, 5-nervia v. nervis lateralibus vix conspicuis marginalibus sub-3-nervia, venulis transversis plus minus distinctis reticulata, petiolo 1-3 lin. longo medium versus rumpente. *Squame* ad basin ramulorum breves, rotundatæ. *Paniculae* in axillis foliorum superiorum pedunculatæ v. ramulum basi paucifoliatum axillarum terminantes, parum ramosæ, laxæ, floribus parvis pedicellatis. *Perianthia* cum filamentis brevissimis fere 2 lin. longæ, perianthium minimum fere occultantes. *Ovarii* loculos in speciminibus examinatis super 2-ovulatos inveni, ovulis collateralibus, ex Brownio tamen inque 1-ovulati sunt, verisimiliter ut in *Smilacibus* nonnullis vident. *Bacæ* globosæ, rubræ, nitidæ, in sicco 4-5 lin. diametro. *Spermae*. *Embryo* parvus in albumine duro.

Either Professor Oliver or myself have examined the ovaries of several specimens gathered by various collectors, and have never found the ovules solitary in the cells as described by Brown, Hooker, and Candolle, and others, and as they certainly are in the other species of the genus.—G. BENTHAM.

1. Flower. 2. Stamens. 3. Perianth and pistil. 4. Ovary, vertical section. 5. Same, transverse section. 6. Seed. 7. The same, vertical section, showing the embryo.

## PLATE 1396.

### RHIPOGONUM ELSEYANUM, F. Muell.

#### SMILACEÆ.

1. *Elseyanum*, F. Muell. *Fragm. Phyt. Austral.* i. 44, floribus in simplicibus subsessilibus dissitis, staminibus perianthio brevioribus, brevissimo, ovario villosulo loculis 1-ovulatis.—Benth. *Fl. Austral.* 10; A. DC. *Monogr.* i. 216.

2. New South Wales; Archer's Station, *Leichhardt*; New England. *Stuart*; Richmond river, *Henderson*.

*Herb.* validus, alte scandens, uti inflorescentiæ rhachis et foliorum primariæ pube ferruginea plus minus conspersus v. obtectus. *Folia* opposita, ovato- v. elliptico-oblonga, brevissime acuminata, 2-5-nerviis, 3-5-tupli-nervia, venulis transversis reticulata, petiolo brevissimis sub lamina rumpente. *Spicæ* axillares, 3-5-pollicares. *Flores*



sigillatim v. per 2-3 dissiti, subsessiles. *Perianthii* segmenta supra oblonga, patentia, ad 3 lin. longa. *Stamina* triente v. fere dimidio breviora, filamentis brevissimis. *Ovarium* laxè villosum, stigmate 3 subsessilibus recurvis; ovula in quoque loculo semper sessilia videntur, lateraliter medifixa. *Fructus* adhuc ignotus.

In all the species of *Rhipogonum* I find the ovules laterally attached about the middle and amphitropous, not pendulous and orbiculate as in *Smilax*, and as given in the general character of the order. The etymology of the generic name was given by Forster himself (*Obs. Bot. Gen.* 50), not first indicated by Hooker, as supposed by A. B. Candolle.—G. BENTHAM.

Fig. 1. Flower. 2. Stamens. 3. Pistil. 4. Ovary, transverse section. 5. The same, vertical section.

## PLATES 1397, 1398.

### DIOSCOREA BUCHANANI, Benth.

#### DIOSCOREACEÆ.

*D. Buchanani*, Benth. *sp. nov.*, foliis alternis late ovato-triangularibus late subcordatis integris v. utrinque basi lobo brevi rotundato acutis 7-nerviis, racemis axillaribus simplicibus, masculis brevibus densis, perianthio subherbaceo lobis acutis, staminibus 6, fœmineis elongatis dissitifloris, capsulis (cum alis) obovatis, seminibus orbiculatis aliis undique circumdati.

HAB. Tropical Africa, Shiré Highlands, Zambesia, *Buchanan*.

*Dioica*, alte volubilis, glabra. *Folia* membranacea, 2-5 poll. longa, basi  $1\frac{1}{2}$ -3 poll. lata, apice subacumine brevi rotundata, auriculis basalibus rotundatis, membranacea, venulis inter venas transversis subreticulatis, petiolo  $1-1\frac{1}{2}$ -pollicari basi sæpius torto. Fl. ♂: *Racemi*  $1\frac{1}{2}$ -2-pollicares, a basi densiflori, pedicellis  $1-1\frac{1}{2}$  lin. longis minute bracteolatis. *Perianthium* quam in omni genere majus, campanulatum, fere ad basin 6-fidum, lobis lato-lanceolatis acutis fere 3 lin. longis (ex sicco) tenuiter herbaceis insigniter purpureo-maculatis. *Stamina* 6, prope basin segmentorum affixa iisque paullo breviora; antheræ ovatæ, dorsifixæ. *Pistilli* rudimentum 0. Fl. ♀: *Racemi* sub anthesi 3-4-pollicares, floribus sessilibus dissitis. *Perianthium* supra ovarium 6-partitum, segmentis angustis acutis ad 2 lin. longis. *Staminodia* minuta. *Ovarium* lineare, 3-4 lin. longum, 3-loculare, ovulis in quoque loculo 2 superpositis pendulis. *Stylus* columnaris, stigmatibus 3 brevibus

*recurvis* apice papillosis. *Capsula* omnino *Dioscorearum* typicarum, 1-1½ poll. longa, vix 1 poll. lata. *Semen* cum ala late ovale, 6-8 lin. longum, 4-5 lin. latum, albumine 2-lamellato et embryo omnino generis. The male perianths are at least twice as large as those of any species known to me, the female flowers and fruits are like those of several others.—G. BENTHAM.

Plate 1397: Male specimen. Fig. 1. Flower. 2. Stamens. Plate 1398: Female specimen. Fig. 1. Flower. 2. The same, longitudinal section. 3. Style. 4. Seed. 5. The same, longitudinal section, showing one lamina of the albumen and the embryo.

## PLATE 1399.

### INULA SHIRENSIS, Oliv.

COMPOSITÆ, Tribe INULOIDEÆ.

*I. shirensis*, Oliv. *sp. nov.*, herbacea erecta, caule fere a basi simpliciter patentem hirsuto-piloso v. glabrato, foliis inferioribus amplius longe petiolatis ellipticis v. oblongo-ellipticis superne gradatim minoribus sessilibus pilosis, capitulis heterogamis majusculis pedunculatis in cymis 3-5-cephalis terminalibus dispositis, involucris dense flavido-pilosis squamis exterioribus herbaceis ovato-lanceolatis acuminatis, interioribus linearibus acuminatis, achæniis glabris longitudinaliter striatis, pappo uniseriato.

HAB. Shiré Highlands, Zambesia.—*Mr. Buchanan.*

*Caulis* 3-5-pedalis teres longitudinaliter striatus plus minus fulvo- v. flavido-hirsutus v. pilosus. *Folia* inferiora 1¼-1½ ped. longa ½-¾ ped. lata obtusiuscula basi in petiolum angustata crenato-sinuata utrinque præcipue in venis paginæ inferioris hirsuto-pilosa, membranacea; folia superiora lanceolata sessilia subamplexicaulia. *Capitula* 1½-2 poll. lata, pedunculata, pedunculis bracteatis dense pilosis, bracteis lanceolatis v. ovato-lanceolatis; involucri squamæ pluriseriatæ interiores angustiores longiores laxè imbricatæ 1-1½ poll. longæ. *Receptaculum* foveolatum. *Flores* radii flavi breves ligula trifida; disci anguste cylindrici; antheræ basi caudatæ candidæ laxè cellulosæ. *Achænia* (immatura) anguste oblonga circ. 15-costata glabra; pappus uniseriatus, setis 30-34 simplicibus.—D. OLIVER.

Fig. 1. Capitulum, section. 2. Ray floret. 3. Disk floret. 4. Anther. 5. Style branches. 6. Seta of pappus.

## PLATE 1400.

## NOTOBUXUS NATALENSIS, Oliv.

EUPHORBIACEÆ, Tribe BUXEÆ.

*Notobuxus*, Oliv. gen. novum. Flores monoici, axillares, fasciculati. Fl. ♂: *Perianthium* 4-phyllum, segmentis per paria decussatis lateralibus cymbiformibus æstivatione exterioribus. Stamina 6, 4 per paria segmentis anterioribus posterioribusque antepositis, 2 singulis segmentis lateralibus oppositis; filamenta brevissima; antheræ ovales v. oblongo-ellipticæ, longitudinaliter dehiscentibus. Ovarii rudimentum nullum. Fl. ♀: *Perianthium* 4-phyllum. Ovarium ovoideum glabrum triloculare, ovula geminata pendula; styli 3 divergentes intus longitudinaliter stigmatosi. Fructus capsularis loculicide 3-valvis, valvis bicornutis. Semina nitida nigra.—*Frutex glaberrima. Folia opposita tenuiter coriacea elliptica.*

HAB. Inanda, Natal, Mr. J. M. Wood, n. 1357; previously collected without expanded flowers by Mr. T. Cooper (1862): Tongaat, s. 3465.

*N. natalensis*, Oliv. sp. unica.

*Folia* 2–4½ poll. longa, ½–2 poll. lata, obtusa v. obtusiuscule acuminata, basi in petiolum brevem angustata, integerrima, lævia, glabra. *Inflorescentia* fasciculata axillaris petiolum paullo superans; flores ♂ v. cum flore ♀ centrali; bractæ lanceolatæ coriacæ.

This plant is entirely *Buxus* excepting in the two additional stamens, and total absence of any rudiment of a gynoecium in the male flower, forming thus a transition to the genera *Simmondsia* and *Stylacoccus*.—D. OLIVER.

Fig. 1. Staminate flower, bud. 2. Same, laid open. 3. Anther, back and front. 4. Pistillate flower and bracts. 5. Vertical section of ovary. 6. Seed and arilliform integument.

PLATE 1360.\*

**SCHEDONNARDUS TEXANUS**, Steud.

GRAMINEÆ, Tribe CHLORIDEÆ.

**TEXANUS**, Steud. *Syn. Pl. Glum.* i. 146. *Lepturus paniculatus*, Ten. N. Amer. Pl. i. 81.

. North America, from Texas and New Mexico to California westward to Illinois, numerous collectors.

caulis tenue, dense cæspitosum, cum panicula  $\frac{1}{2}$ –1 $\frac{1}{2}$ -pedali. Folia linearia v. ad basin caulis anguste linearia v. fere subulata, flaccida, longiuscula striata, lamina sæpius 1–2-pollicari, ligula hyalina, aequalis, sepe lacera. Caulis infra inflorescentiam 1–4-pollicaris, a paucis lamina brevi terminatis fere obtectus. Panicula sæpius 2–3-plo longior, ramis paucis simplicibus longe dissitis tenuibus his 1–3-pollicaribus, primum erectis secundis mox patentissimis aralibus. Spiculæ 1-floræ, tenues, acuminatæ, 1–1 $\frac{1}{2}$  lin. longæ, rhachin tenuem alternatim sessiles, secundæ, rhachi arcte sess, exaristatæ. Rhachilla brevissima, supra glumas inferiores nata, ultra florem non producta, flore hermaphrodito. Glumæ 2 res vacuæ, parum inæquales, infra articulationem persistentes, æ, membranaceæ, acuminatæ; florens longior, membranacea, rigidula, mucronulata, paleam angustam breviorē floremque æqualē. Lodiculæ 0. Stamina 3. Styli distincti, stigmatibus sess. Caryopsis linearis, gluma paleaque rigidulis inclusa, libera. When Nuttall referred this plant to *Lepturus* he was evidently unacquainted with the typical European species, and in the endeavour to identify them with his American plant drew up a generic character which will not apply to either. His description of the species is, however, accurate. Steudel, meeting with Drummond's Texan species, proposed them as a new genus without any reference to Nuttall's known plant. The genus appears to me to be nearer allied to *Pogon* than to any other.—G. BENTHAM.

1. Portion of the rhachis with the persistent outer glumes of two spikelets. 2. Upper glume and palea from the upper spikelet. 3, 4. Outer empty glumes. 5. Inner glume. 6. Palea. 7. Flower. 8. Stamens. 9. Caryopsis.

\* Accidentally omitted above (p. 43).



# INDEX OF SPECIES AND SYNONYMS.

	Page	Plate		Page	Plate
um ornans, Hook. f.	16	1323	Cryptochloris	spathacea,	
nteri, Oliv.	36	1350	Benth.	57	1376
pulvinata, Benth.	44	1362	Cyathochaete	clandestina,	
muschinensis, Benth.	33		Benth.	31	1343
rmis, Benth.	33	1346	Cyphostigma	pulchellum,	
rsii, Benth.	33		Benth.	61	1380
pulchellum, Thw.	61				
a gnaphalodes, DC.	28	1339	Dacrydium Fitzgeraldi, F.M.	64	
a lepida, Nees	45	1363 A.	Dactylis brevifolia, Roem.	51	
a Buchananii,			Dimorphochlamys	Mannii,	
	68	1388	Hook. f.	15	1322
ropodioides, Benth.	18	1325	Dioscorea Buchananii, Benth.	76	1397-8
es aphylla, R. Br.	32	1345	Diplorhynchus mosambicensis, Benth.	40	1355
sis, Benth.	33		Dissanthelium californicum,		
rsii, Kth.	33		Benth.	56	1375
filiformis, Thw.	33		— sclerochloides, Fourn.	55	
ia spartioides,			— supinum, Trin.	55	1374
	7	1311			
ligustrina, F.M.	13		Ecklonia capensis, Stead.	34	
Kalbreyeri, Oliv.	38	1352	Eleusine brevifolia, Hochst. & St.	51	
z ornata, F.M.	16		Epallage dentata, DC.	74	1394
a floribunda,			Eragrostis brevifolia, Benth.	51	
	43		— caelachyrum, Benth.	50	1368
ia globiflora, Benth.	43		— Piercii, Benth.	52	1370
ia longifolia, Benth.	42	1359	— Schimperii, Benth.	53	1371
africana, Welw.	21	1328	— Wightiana, Benth.	62	1381
Kalbreyeri, Oliv.	41	1357	Eriospira pilosa, Benth.	30	1342
don purpurascens,			Erythrospermum polyandrum,		
	65	1384	Oliv.	24	1333
a Kirkii, Hook. f.	23	1332	Euphorbia zambesiana, Benth.	3	1305
destina, R. Br.	31		Euroschinus faicatus, Hook. f.	6	
us natalensis, Oliv.	22	1331			
sorghoides, Benth.	60	1379	Farsetia Burtonæ, Oliv.	7	1310
brevifolium, Nees	51		Fimbristylis planiculmis,		
sis, Oliv.	70	1390	Böck.	32	
yperoides, Nees	29	1341	Fingerluthia africana, Lehm.	54	1373
schia africana,			— ciliata, Nees	54	
	58	1377	— sesleriiformis, Nees	54	



# INDEX OF SPECIES AND SYNONYMS.

	Page	Plate		Page	Plate
<i>yllum ornans</i> , Hook. f.	16	1323	<i>Cryptochloris</i> spathacea,		
<i>Hunteri</i> , Oliv.	36	1350	<i>Benth.</i>	57	1376
<i>le pulvinata</i> , Benth.	44	1362	<i>Cyathochaete</i> clandestina,		
<i>chamaechinensis</i> , Benth.	33		<i>Benth.</i>	31	1343
<i>iformis</i> , Benth.	33	1346	<i>Cyphostigma</i> pulchellum,		
<i>tonarsii</i> , Benth.	33		<i>Benth.</i>	61	1380
<i>m pulchellum</i> , Thw.	61		<i>Dacrydium Fitzgeraldi</i> , F.M.	64	
<i>oxa gnaphalodes</i> , DC.	28	1339	<i>Dactylis brevifolia</i> , Roem.	51	
<i>loa lepida</i> , Nees	45	1363 A.	<i>Dimorphochlamys</i> Mannii,		
<i>rion</i> Buchananii,			<i>Hook. f.</i>	15	1322
<i>Benth.</i>	68	1388	<i>Dioscorea Buchananii</i> , Benth.	76	1397-8
<i>Tycopodioides</i> , Benth.	18	1325	<i>Diplorhynchus mosambicensis</i> , Benth.	40	1355
<i>tyles aphylla</i> , R. Br.	32	1345	<i>Dissanthelium californicum</i> ,		
<i>incensis</i> , Benth.	33		<i>Benth.</i>	56	1375
<i>onarsii</i> , Kth.	33		<i>sclerochloides</i> , Fourn.	55	
<i>ylis filiformis</i> , Thw.	33		<i>supinum</i> , Trin.	55	1374
<i>mma spartioides</i> ,			<i>Ecklonia capensis</i> , Stead.	34	
<i>Benth.</i>	7	1311	<i>Eleusine brevifolia</i> , Hochst. &		
<i>ia ligustrina</i> , F.M.	13		<i>St.</i>	51	
<i>lla Kalbreyeri</i> , Oliv.	38	1352	<i>Epallage dentata</i> , DC.	74	1394
<i>ema ornans</i> , F.M.	16		<i>Eragrostis brevifolia</i> , Benth.	51	
<i>tegia floribunda</i> ,			<i>coslachyrum</i> , Benth.	50	1368
<i>Benth.</i>	43		<i>Piercii</i> , Benth.	52	1370
<i>tegia globiflora</i> , Benth.	43		<i>Schimperi</i> , Benth.	53	1371
<i>tagia longifolia</i> , Benth.	42	1359	<i>Wightiana</i> , Benth.	62	1381
<i>hia africana</i> , Welw.	21	1328	<i>Eriospora pilosa</i> , Benth.	30	1342
<i>nia Kalbreyeri</i> , Oliv.	41	1357	<i>Erythrospermum polyandrum</i> ,		
<i>osiphon purpurascens</i> ,			<i>Oliv.</i>	24	1333
<i>Benth.</i>	65	1384	<i>Euphorbia zambesiana</i> , Benth.	3	1305
<i>elia Kirkii</i> , Hook. f.	23	1332	<i>Euroschinus faicatus</i> , Hook. f.	6	
<i>clandestina</i> , R. Br.	31		<i>Farsetia Burtonæ</i> , Oliv.	7	1310
<i>athus natalensis</i> , Oliv.	22	1331	<i>Fimbristylis planiculmis</i> ,		
<i>ine sorghoides</i> , Benth.	60	1379	<i>Bæck.</i>	32	
<i>um brevifolium</i> , Nees	51		<i>Fingerluthia africana</i> , Lehm.	54	1373
<i>alensis</i> , Oliv.	70	1390	<i>ciliata</i> , Nees	54	
<i>ia cyperoides</i> , Nees	29	1341	<i>sesleriiformis</i> , Nees	54	
<i>orhachis africana</i> ,					
<i>Benth.</i>	58	1377			



# INDEX OF SPECIES AND SYNONYMS.

	Page	Plate		Page
<i>Gamblea ciliata</i> , C. B. Cl. . . . .	27	1338	<i>Phalaridium peruvianum</i> , Nees . . .	55
<i>Ganophyllum falcatum</i> , Bl. . . . .	5	1308	<i>Pherosphaera Fitzgeraldi</i> , F. M. .	64
<i>Glossocalyx brevipes</i> , Benth. . . . .	2	1302	<i>Phyllobotryum spathulatum</i> , Muell. Arg. . . . .	38
— <i>longicuspis</i> , Benth. . . . .	1	1301	<i>Physotrichia Buchananii</i> , Benth. . . . .	41
<i>Harpachne Schimperii</i> , Hochst. . .	53		<i>Poranthera alpina</i> , Cheesem. . . .	49
<i>Helietta apiculata</i> , Benth. . . . .	67		<i>Pseudocentrum minus</i> , Benth. . .	63
— <i>parvifolia</i> , Benth. . . . .	66	1385	<i>Ptelea parvifolia</i> , A. Gr. . . . .	66
<i>Indigofera trachyphylla</i> , Benth. . . . .	39	1354	<i>Pteroscleria longifolia</i> , Griseb. .	33
<i>Inula shirensis</i> , Oliv. . . . .	77	1399	<i>Quercus Beccariana</i> , Benth. . . .	10
<i>Lanessania turbinata</i> , Baill. . . . .	19	1326	— <i>Jenkinsii</i> , Benth. . . . .	8
<i>Lanium Avicula</i> , Lindl. . . . .	25	1335	— <i>Maingayi</i> , Benth. . . . .	9
— <i>microphyllum</i> , Lindl. . . . .	24	1334	<i>Rajania hastata</i> , L. . . . .	72
<i>Leontochir Ovallei</i> , Phil. . . . .	69	1389	<i>Randia Buchanani</i> , Oliv. . . . .	40
<i>Leptochloa Wightiana</i> , Nees . . .	62		<i>Rhanterium epapposum</i> , Oliv. . .	50
<i>Leptogonum domingense</i> , Benth. . . . .	14	1320	<i>Rhipogonum Elseyanum</i> , F. M. . .	75
<i>Lepturus paniculatus</i> , Nutt. . . .	79		— <i>scandens</i> , Forst. . . . .	74
<i>Loranthus Atkinsonae</i> , Benth. . . .	13	1319	<i>Rhynchospora rappioides</i> , Benth. . . . .	31
— <i>curviflorus</i> , Benth. . . . .	3	1304	<i>Rosa Ecce</i> , Aitch. . . . .	21
— <i>Kirkii</i> , Oliv. . . . .	6	1309	<i>Schaffnera gracilis</i> , Benth. . . .	59
— <i>Mannii</i> , Oliv. . . . .	2	1303	<i>Schedonnardus texanus</i> , St. . . .	79
<i>Micraira subulifolia</i> , F. M. . . . .	43	1361	<i>Scyphosyce Manniana</i> , Baill. . . .	20
<i>Micronychia madagascariensis</i> , Oliv. . . . .	27	1337	<i>Simaruba monophylla</i> , Oliv. . . .	68
<i>Modecca aculeata</i> , Oliv. . . . .	11	1317	<i>Soyauxia gabonensis</i> , Oliv. . . .	73
<i>Munroa squarrosa</i> , Torr. . . . .	54	1372	<i>Stenochloa californica</i> , Nutt. . .	56
<i>Musanga Smithii</i> , R. Pr. . . . .	4	1306-7	<i>Stellularia nigricans</i> , Benth. . .	12
<i>Nephelochloa orientalis</i> , Boiss. . .	51	1369	<i>Tecoma Nyassae</i> , Oliv. . . . .	37
<i>Niebuhria Woodii</i> , Oliv. . . . .	67	1386	<i>Thespesia Danis</i> , Oliv. . . . .	26
<i>Noronhia Broomeana</i> , Horne . . . .	48	1365	<i>Trianoptiles capensis</i> , Fenzl. . .	34
<i>Notobuxus natalensis</i> , Oliv. . . . .	78	1400	<i>Trilepis pilosa</i> , Boeck. . . . .	30
<i>Oxygonum alatum</i> , Rurck. . . . .	14	1321	<i>Urochlena pusilla</i> , Nees . . . .	46
<i>Penianthus longifolius</i> , Miers. . . .	22	1330	<i>Vernonia Nyassae</i> , Oliv. . . . .	35
<i>Pentzia pinnatifida</i> , Oliv. . . . .	28	1340	— <i>stenocephala</i> , Oliv. . . . .	35
<i>Persea Nanmu</i> , Oliv. . . . .	10	1316	<i>Veronica Cheesemani</i> , Benth. . .	48
<i>Petermannia cirrosa</i> , F. M. . . . .	71	1391	<i>Yoonia japonica</i> , Maxim. . . . .	47
<i>Phacellaria rigidula</i> , Benth. . . .	17	1324		

PL. 1301.



*Glossocalyx longicuspis*, Benth.

# INDEX OF SPECIES AND SYNONYMS.

	Page	Plate		Page
Gamblea ciliata, <i>C. B. Cl.</i>	27	1338	<i>Phalaridium peruvianum</i> , Nees	55
Ganophyllum falcatum, <i>Bl.</i>	5	1308	Pherosphera Fitzgeraldi, <i>F. M.</i>	64
Glossocalyx brevipes, <i>Benth.</i>	2	1302	Phyllobotryum spathulatum,	
— longicuspis, <i>Benth.</i>	1	1301	<i>Muell. Arg.</i>	38
<i>Harpachne Schimper</i> , Hochst.	53		Physotrichia Buchananii,	
<i>Helietta apiculata</i> , <i>Benth.</i>	67		<i>Benth.</i>	41
— parvifolia, <i>Benth.</i>	66	1385	Poranthera alpina, <i>Cheesem.</i>	49
Indigofera trachyphylla,			Pseudocentrum minus, <i>Benth.</i>	63
<i>Benth.</i>	39	1354	<i>Ptelea parvifolia</i> , <i>A. Gr.</i>	66
Inula shirensis, <i>Oliv.</i>	77	1399	Pteroscleria longifolia, <i>Griseb.</i>	33
Lanessania turbinata, <i>Baill.</i>	19	1326	Quercus Beccariana, <i>Benth.</i>	10
Lanium Avicula, <i>Lindl.</i>	25	1335	— Jenkinsii, <i>Benth.</i>	8
— microphyllum, <i>Lindl.</i>	24	1334	— Maingayi, <i>Benth.</i>	9
Leontochir Ovallei, <i>Phil.</i>	69	1389	Rajania hastata, <i>L.</i>	73
Leptochloa Wightiana, <i>Nees</i>	62		Randia Buchananii, <i>Oliv.</i>	40
Leptogonum domingense,			Rhanterium epapposum, <i>Oliv.</i>	50
<i>Benth.</i>	14	1320	Rhipogonum Elseyanum, <i>F. M.</i>	75
Lepturus paniculatus, <i>Nutt.</i>	79		— scandens, <i>Forst.</i>	74
Loranthus Atkinsonae, <i>Benth.</i>	13	1319	Rhynchospora ruppioides,	
— curviflorus, <i>Benth.</i>	3	1304	<i>Benth.</i>	31
— Kirkii, <i>Oliv.</i>	6	1309	Rosa Ecae, <i>Aitch.</i>	31
— Mannii, <i>Oliv.</i>	2	1303	Schaffnera gracilis, <i>Benth.</i>	59
Micraira subulifolia, <i>F. M.</i>	43	1361	Schedonnardus texanus, <i>St.</i>	79
Microzychia madagascariensis, <i>Nes.</i>	27	1337	Scyphosyce Manniana, <i>Baill.</i>	20
Modoca aculeata, <i>Oliv.</i>	11	1317	Simaruba monophylla, <i>Oliv.</i>	68
Munroa squarrosa, <i>Torr.</i>	54	1372	Soyauxia gabonensis, <i>Oliv.</i>	73
Mussaenda Smithii, <i>R. Pr.</i>	4	1306	Stenochloa californica, <i>Nutt.</i>	56
Nephelochloa orientalis, <i>Boiss.</i>	51	1369	Stellularia nigricans, <i>Benth.</i>	12
Niebuhria Woodii, <i>Oliv.</i>	67	1386	Tecoma Nyasae, <i>Oliv.</i>	37
Norumbia Broomiana, <i>Horne</i>	48	1365	Thespesia Danis, <i>Oliv.</i>	26
Norumbia natalensis, <i>Oliv.</i>	78	1400	Trianoptiles capensis, <i>Fenzl.</i>	34
Oxygonum alatum, <i>Rurk.</i>	14	1321	Trilepis pilosa, <i>Beck.</i>	30
Panicanthus longifolius, <i>Murr.</i>	22	1330	Urochloa pusilla, <i>Nees</i>	46
Pectis pinnatifida, <i>Oliv.</i>	28	1340	Vernonia Nyasae, <i>Oliv.</i>	35
Pteris Nanae, <i>Oliv.</i>	10	1316	— stenoccephala, <i>Oliv.</i>	35
Pteromania curvica, <i>F. M.</i>	71	1391	Veronica Cheesemani, <i>Benth.</i>	48
Phacellaria repidaia, <i>Beck.</i>	17	1324	Yozia japonica, <i>Maxim.</i>	47

Pl. 1302



Robert Brown, Esq. 1810





*Glossocalyx brevipes*, Benth. ♀

# INDEX OF SPECIES AND SYNONYMS.

	Page	Plate		
<i>Gamblea ciliata</i> , C. B. Cl. . . . .	27	1338	<i>Phalaridium peruvianum</i> , Nees	F
<i>Ganophyllum falcatum</i> , Bl. . . . .	5	1308	<i>Pherosphaera Fitzgeraldi</i> , F. M.	
<i>Glossocalyx brevipes</i> , Benth. . . . .	2	1302	<i>Phyllobotryum spathulatum</i> ,	
— <i>longicuspis</i> , Benth. . . . .	1	1301	Muell. Arg. . . . .	
<i>Harpachne Schimperii</i> , Hochst. . . . .	53		<i>Physotrichia Buchanani</i> ,	
<i>Helietta apiculata</i> , Benth. . . . .	67		Benth. . . . .	
— <i>parvifolia</i> , Benth. . . . .	66	1385	<i>Poranthera alpina</i> , Cheesem. . . . .	
<i>Indigofera trachyphylla</i> ,			<i>Pseudocentrum minus</i> , Benth. . . . .	
Benth. . . . .	39	1354	<i>Ptelea parvifolia</i> , A. Gr. . . . .	
<i>Inula shirensis</i> , Oliv. . . . .	77	1399	<i>Pteroscleria longifolia</i> , Griseb.	
<i>Lanessania turbinata</i> , Baill. . . . .	19	1326	<i>Quercus Beccariana</i> , Benth. . . . .	
<i>Lanium Avicula</i> , Lindl. . . . .	25	1335	— <i>Jenkinsii</i> , Benth. . . . .	
— <i>microphyllum</i> , Lindl. . . . .	24	1334	— <i>Maingayi</i> , Benth. . . . .	
<i>Leontochir Ovallei</i> , Phil. . . . .	69	1389	<i>Rajania hastata</i> , L. . . . .	
<i>Leptochloa Wightiana</i> , Nees . . . . .	62		<i>Randia Buchanani</i> , Oliv. . . . .	
<i>Leptogonum domingense</i> ,			<i>Rhanterium epapposum</i> , Oliv. . . . .	
Benth. . . . .	14	1320	<i>Rhipogonum Elseyanum</i> , F. M.	
<i>Lepturus paniculatus</i> , Nutt. . . . .	79		— <i>scandens</i> , Forst. . . . .	
<i>Loranthus Atkinsonae</i> , Benth. . . . .	13	1319	<i>Rhynchospora ruppioides</i> ,	
— <i>curviflorus</i> , Benth. . . . .	3	1304	Benth. . . . .	
— <i>Kirkii</i> , Oliv. . . . .	6	1309	<i>Rosa Ecce</i> , Aitch. . . . .	
— <i>Mannii</i> , Oliv. . . . .	2	1303	<i>Schaffnera gracilis</i> , Benth. . . . .	
<i>Micraira subulifolia</i> , F. M. . . . .	43	1361	<i>Schedonnardus texanus</i> , St. . . . .	
<i>Micronychia madagascariensis</i> ,			<i>Scyphosyce Manniana</i> , Baill. . . . .	
Oliv. . . . .	27	1337	<i>Simaruba monophylla</i> , Oliv. . . . .	
<i>Modecca aculeata</i> , Oliv. . . . .	11	1317	<i>Soyauxia gabonensis</i> , Oliv. . . . .	
<i>Munroa squarrosa</i> , Torr. . . . .	54	1372	<i>Stenochloa californica</i> , Nutt. . . . .	
<i>Musanga Smithii</i> , R. Pr. . . . .	4	1306-7	<i>Stellularia nigricans</i> , Benth. . . . .	
<i>Nepheleochloa orientalis</i> , Boiss. . . . .	51	1369	<i>Tecoma Nyassae</i> , Oliv. . . . .	
<i>Niebuhria Woodii</i> , Oliv. . . . .	67	1386	<i>Thespesia Danis</i> , Oliv. . . . .	
<i>Noronhia Broomeana</i> , Horne . . . . .	48	1365	<i>Trianoptiles capensis</i> , Fenzl. . . . .	
<i>Notobuxus natalensis</i> , Oliv. . . . .	78	1400	<i>Trilepis pilosa</i> , Boeck. . . . .	
<i>Oxygonum alatum</i> , Rurch. . . . .	14	1321	<i>Urochlena pusilla</i> , Nees . . . . .	
<i>Penianthus longifolius</i> , Miers. . . . .	22	1330	<i>Vernonia Nyassae</i> , Oliv. . . . .	
<i>Pentzia pinnatifida</i> , Oliv. . . . .	28	1340	— <i>stenocephala</i> , Oliv. . . . .	
<i>Persea Nanmu</i> , Oliv. . . . .	10	1316	<i>Veronica Cheesemani</i> , Benth. . . . .	
<i>Ptermannia cirrosa</i> , F. M. . . . .	71	1391	<i>Yonia japonica</i> , Maxim. . . . .	
<i>Phacellaria rigidula</i> , Benth. . . . .	17	1324		

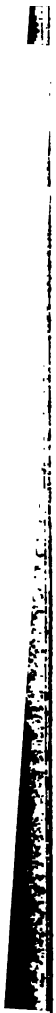






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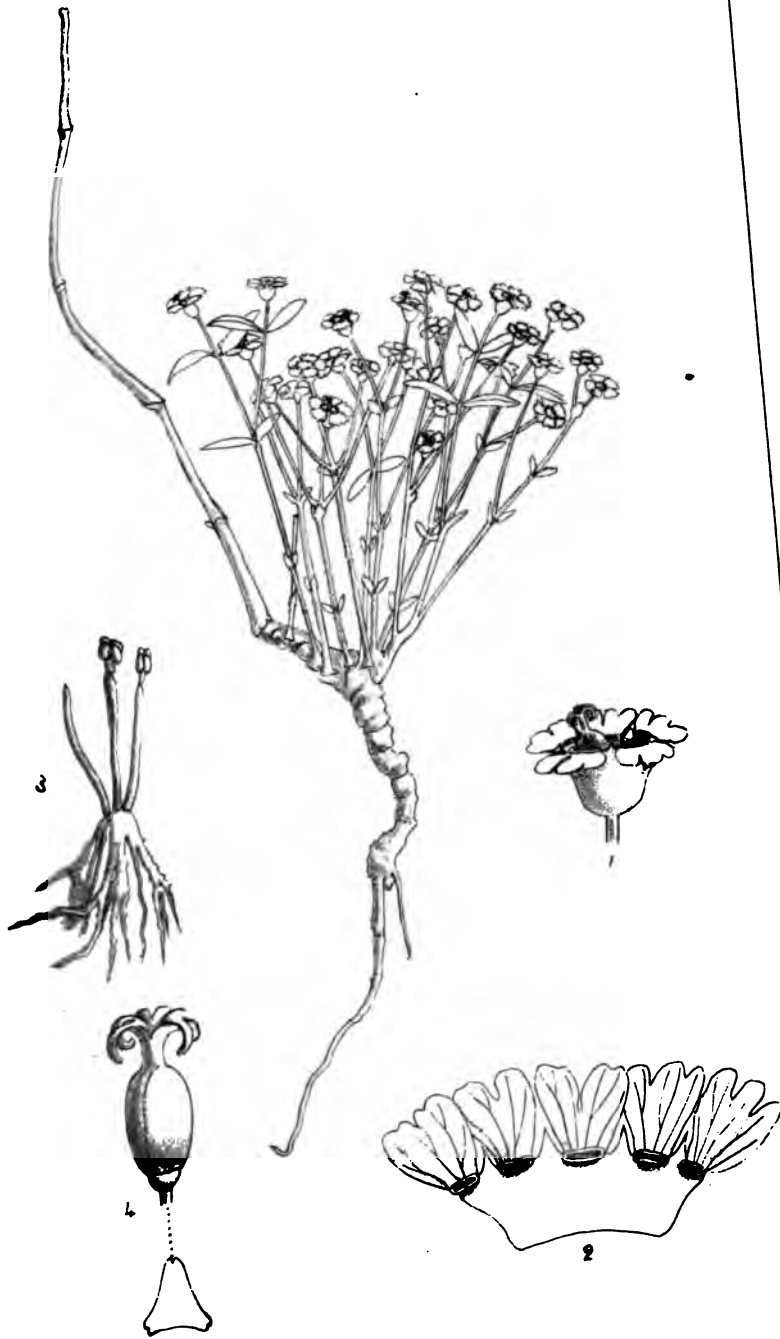
*Loranthus Mannii*. Oliv.





*Loranthus curviflorus*. Benth.





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*Eriogonja zambesiana* Benth.



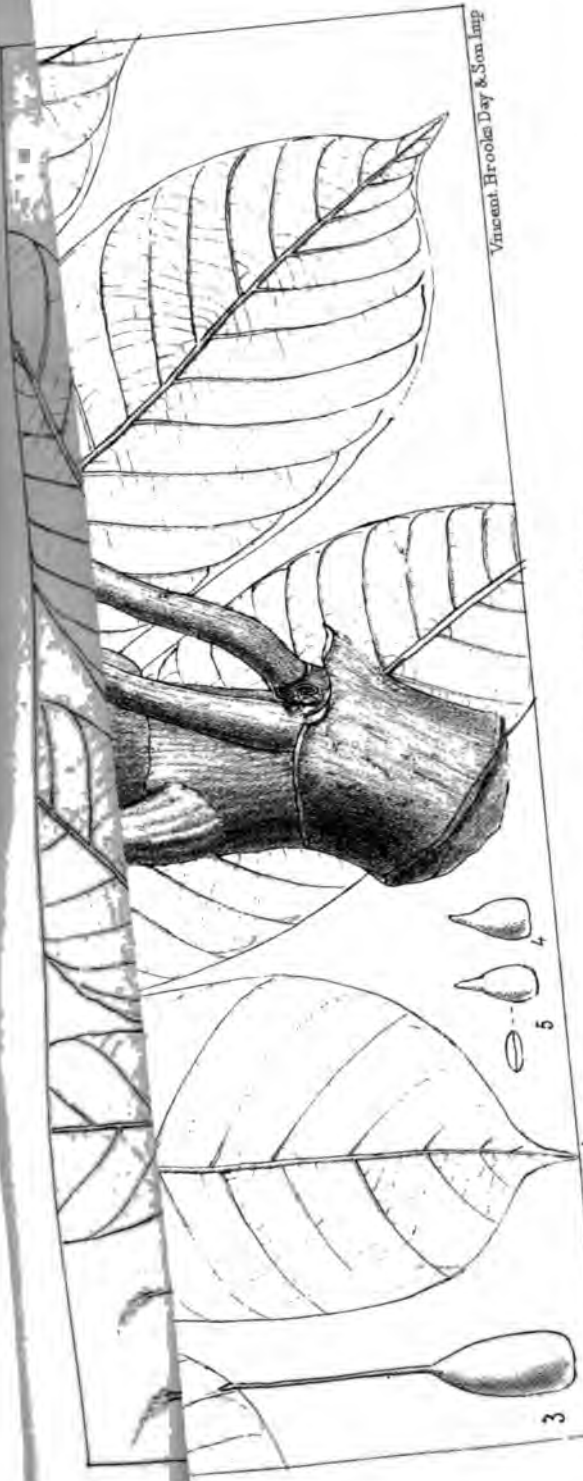


Vincent Brooks Day & Son Inc

3a *Smithii* R. D. .







*Musanga Smithii*, R.Br. f.

A.M.C. del.





Vincent Brocas Day & Son, Inc.

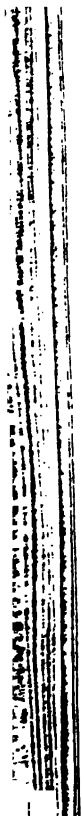
*Ganophyllum falcatum*, Bl





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*Loranthus Kirkii* Oliv.





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*Farsetia burtonae* Oliv.





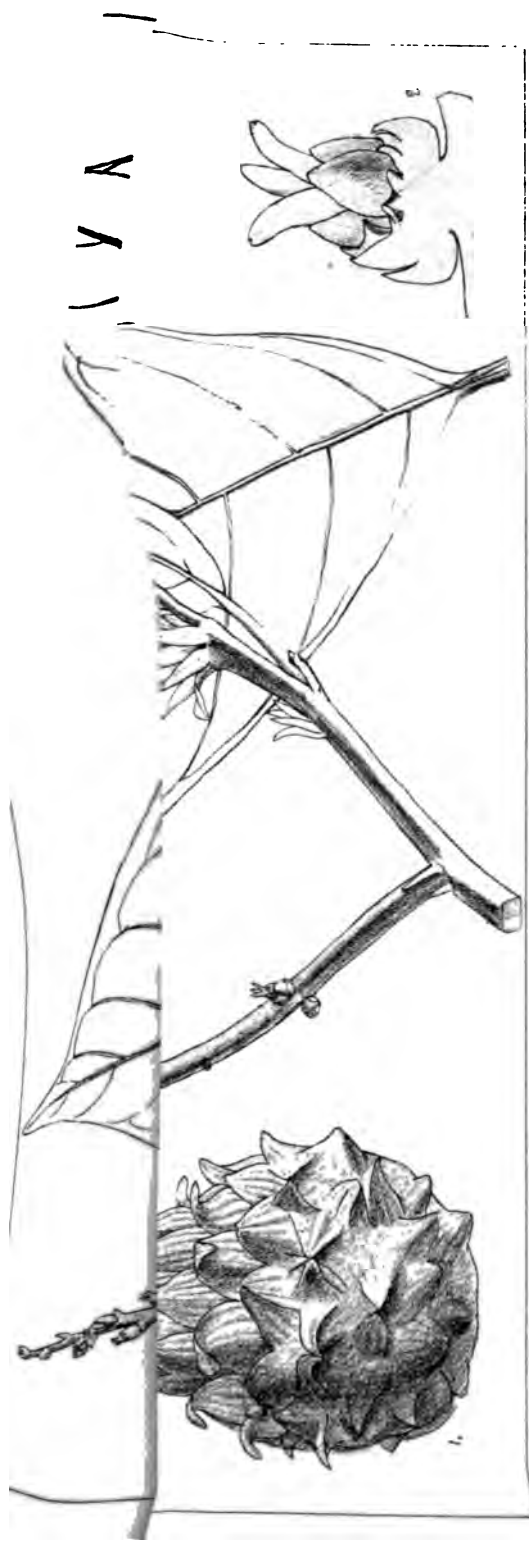


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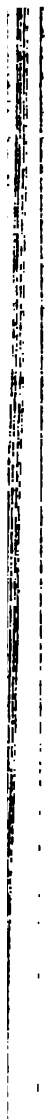
Vincent Brooks Day &amp; Son

*Astrostemma spartioides*, Benth.





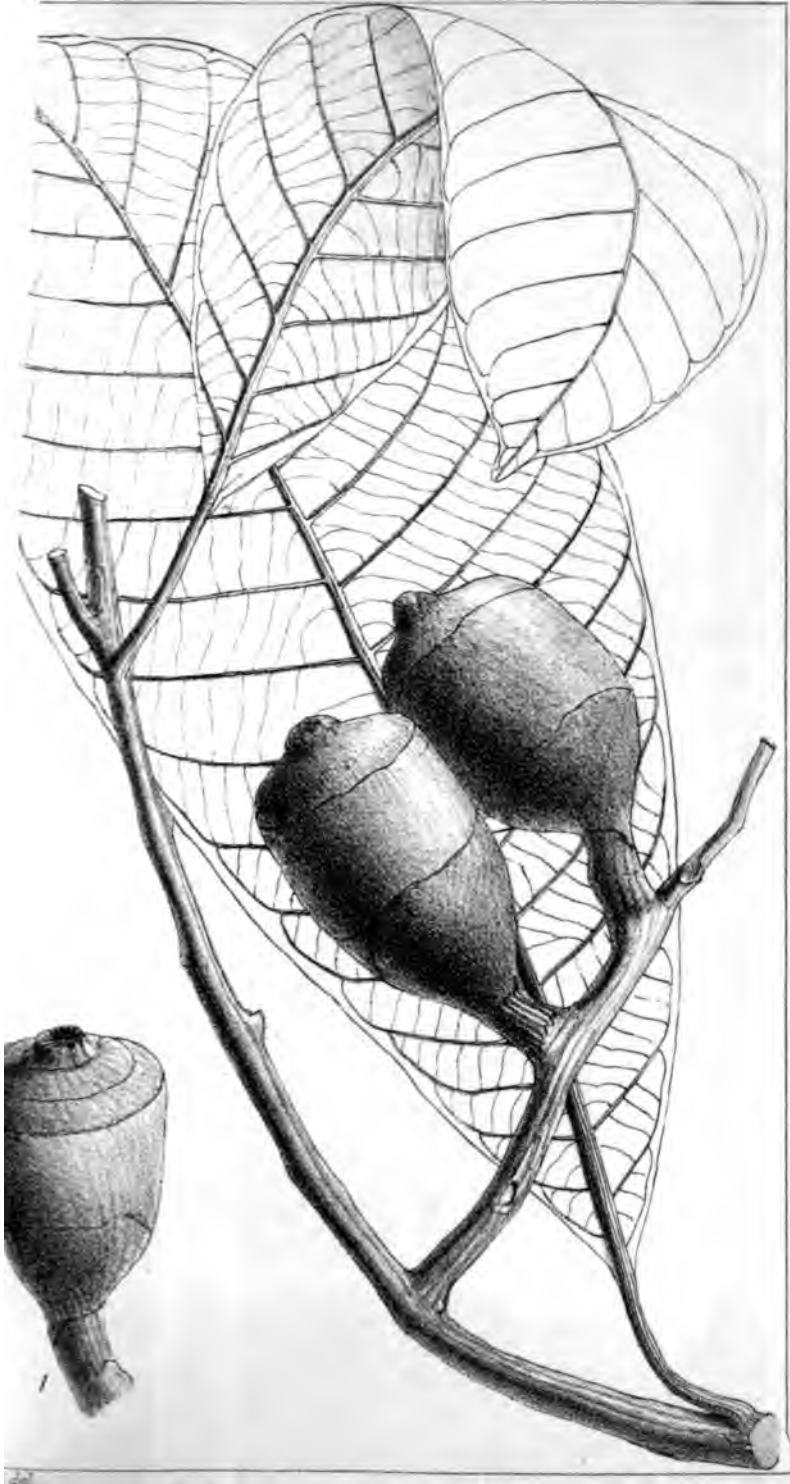
*Quercus Jenkinsii*, Benth





*Quercus* Jenkinsii, Bentn.

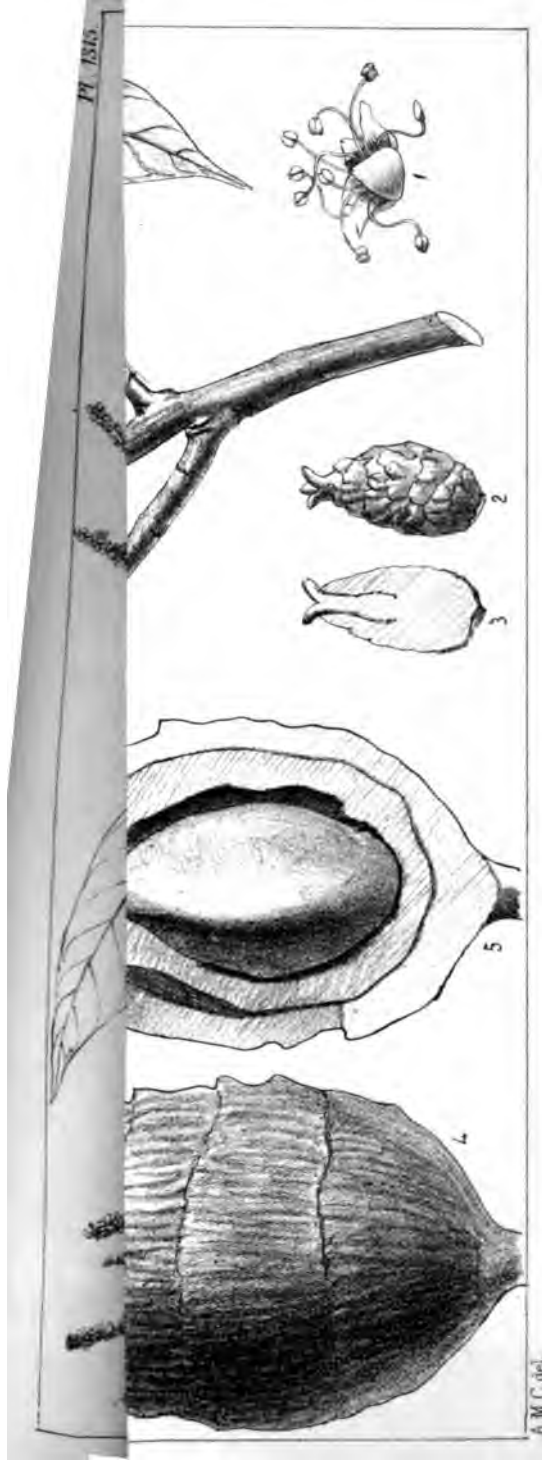




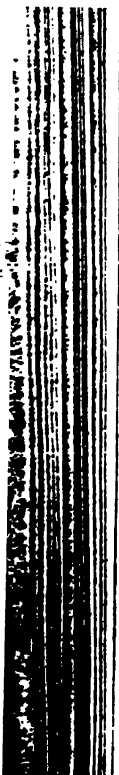
*Quercus Maindavi* Benth.







*Quercus Beccariana*, Benth.

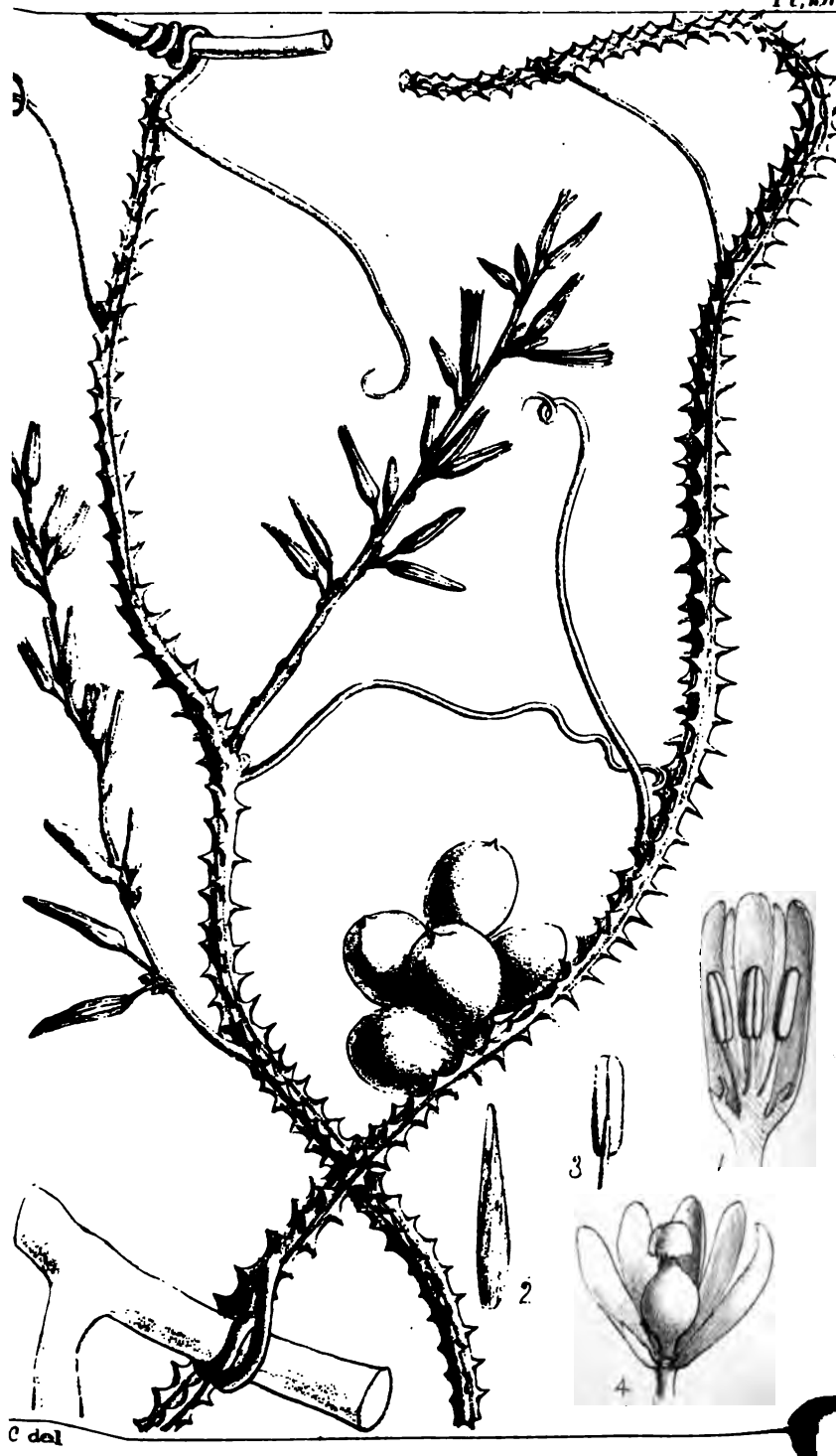




. dal.

*Persea nanmu*, Oliv.



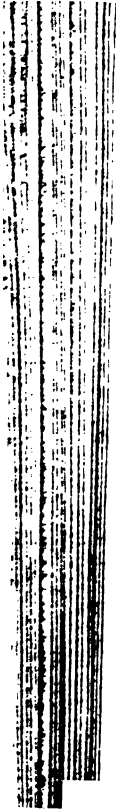


*Modecca aculeata*, Oliv.





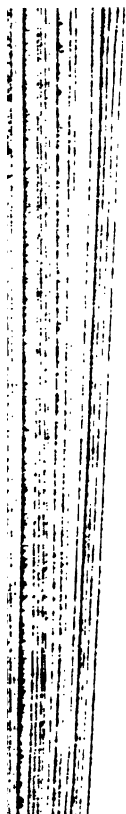
*Stellularia nigricans* Benth.





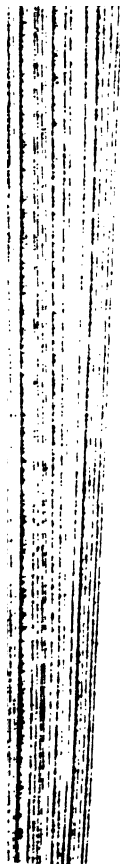






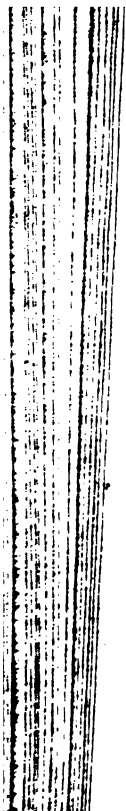


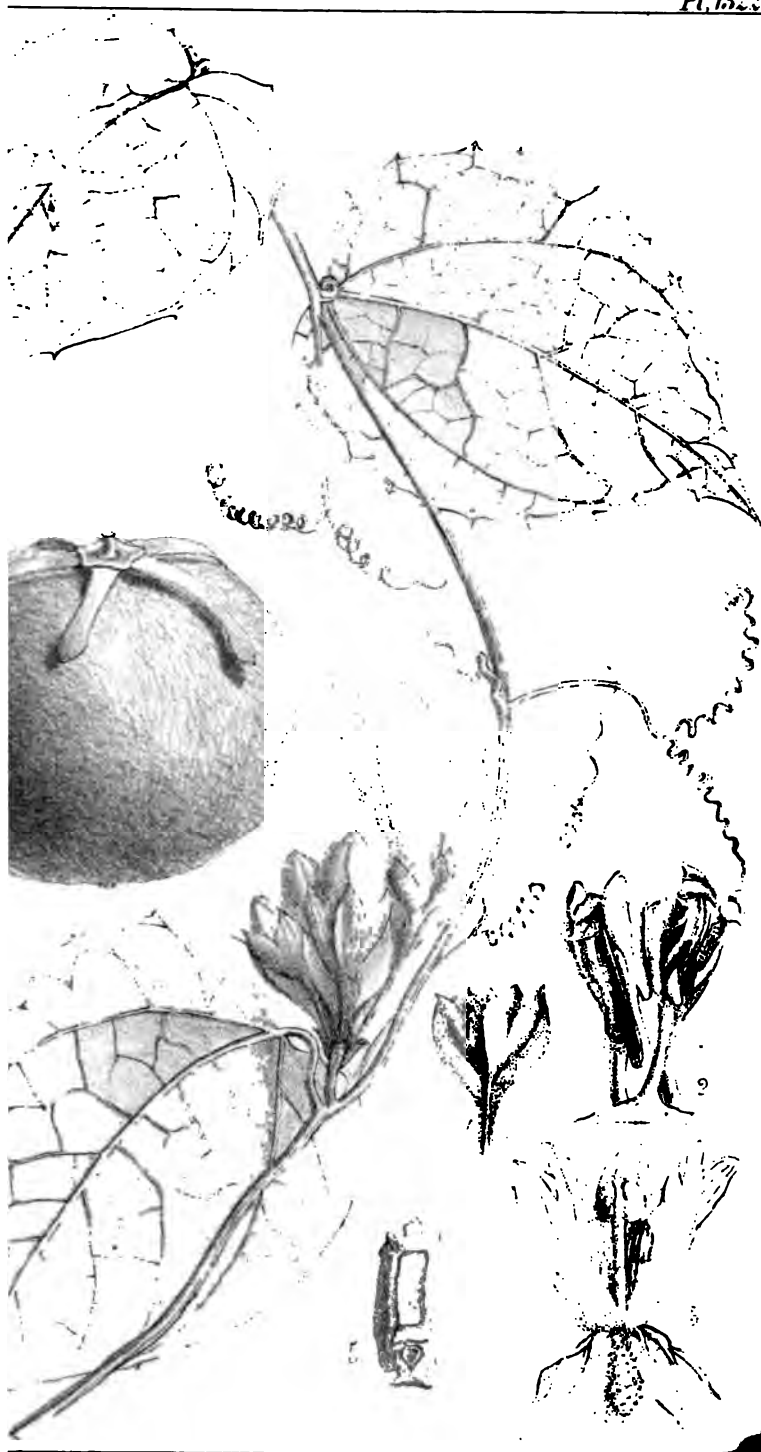
*Leptogonum domingense*. Benth.





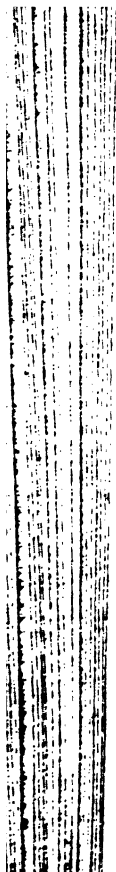
*Oxygonum alatum*. Burch.





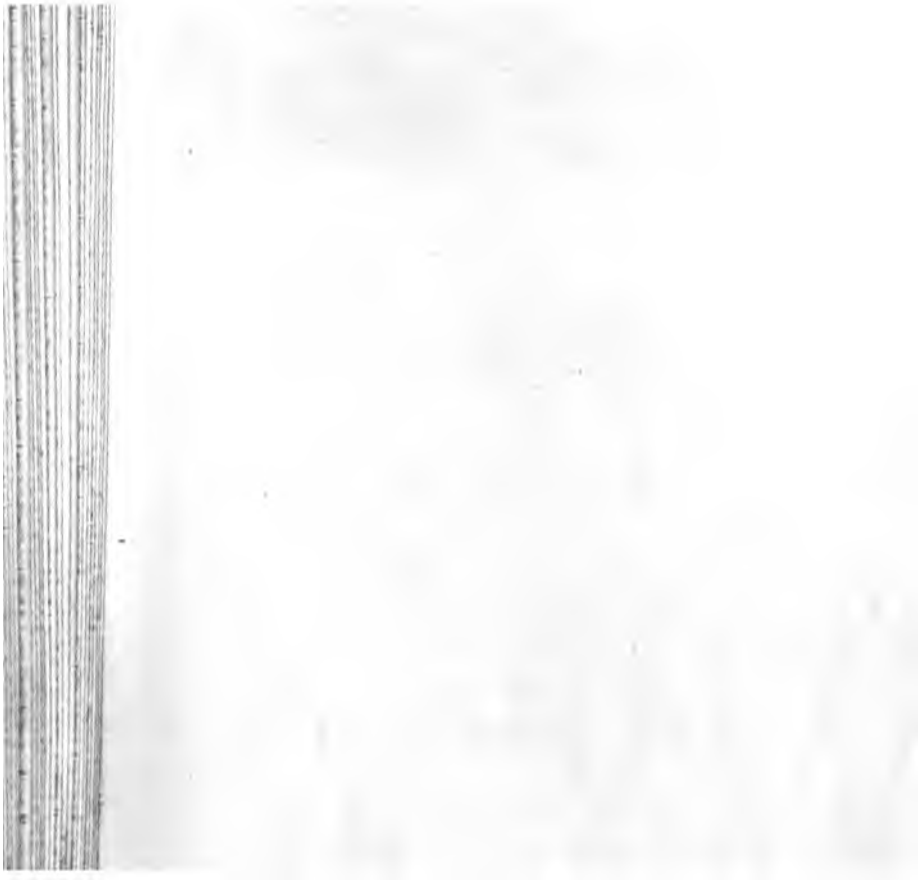
*Dimorphochlamys Mannii* Hk. f.







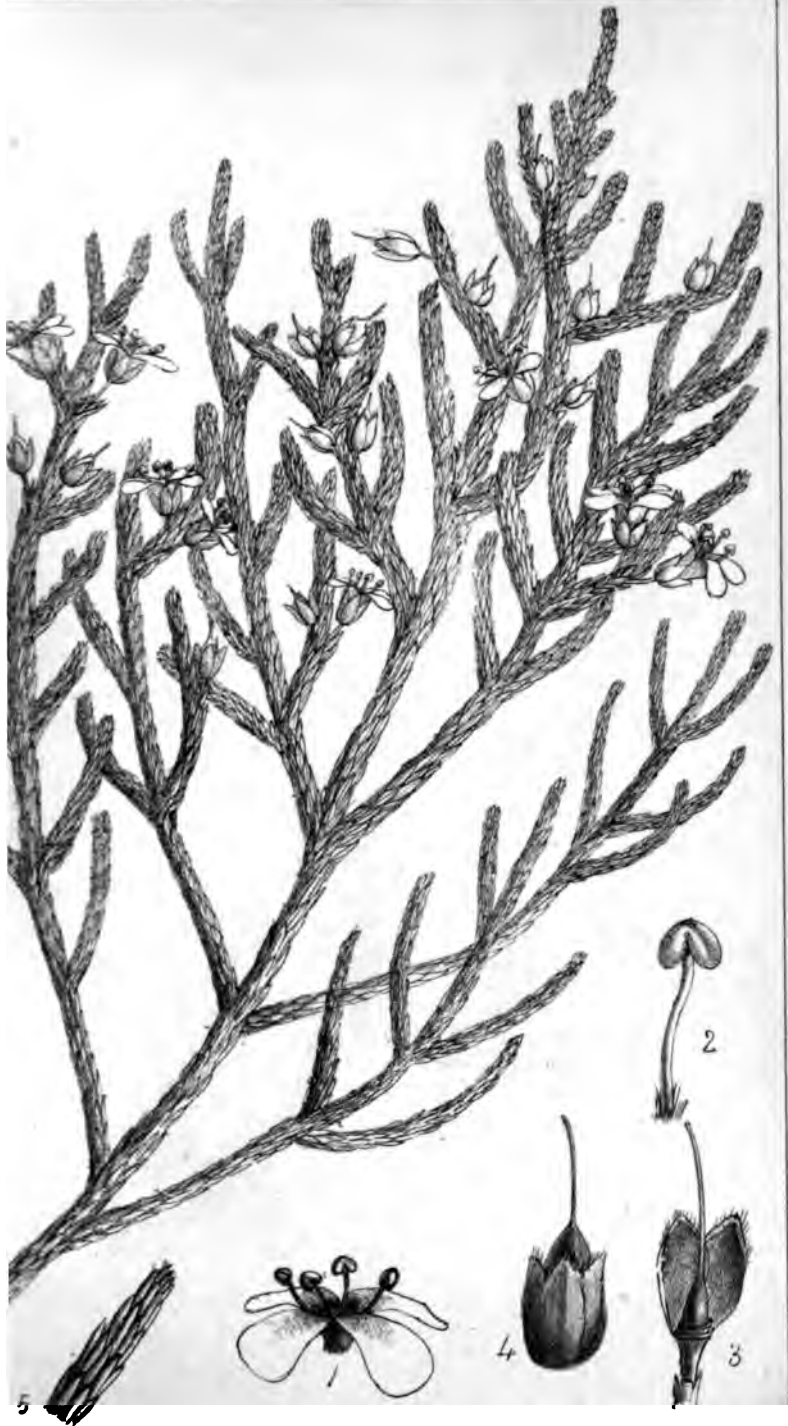
*Abrophyllum ornans*, Hk. f.



1324







*Aragoa lycopodioides*, Benth.





*Lanessania turbinata*, Baill.







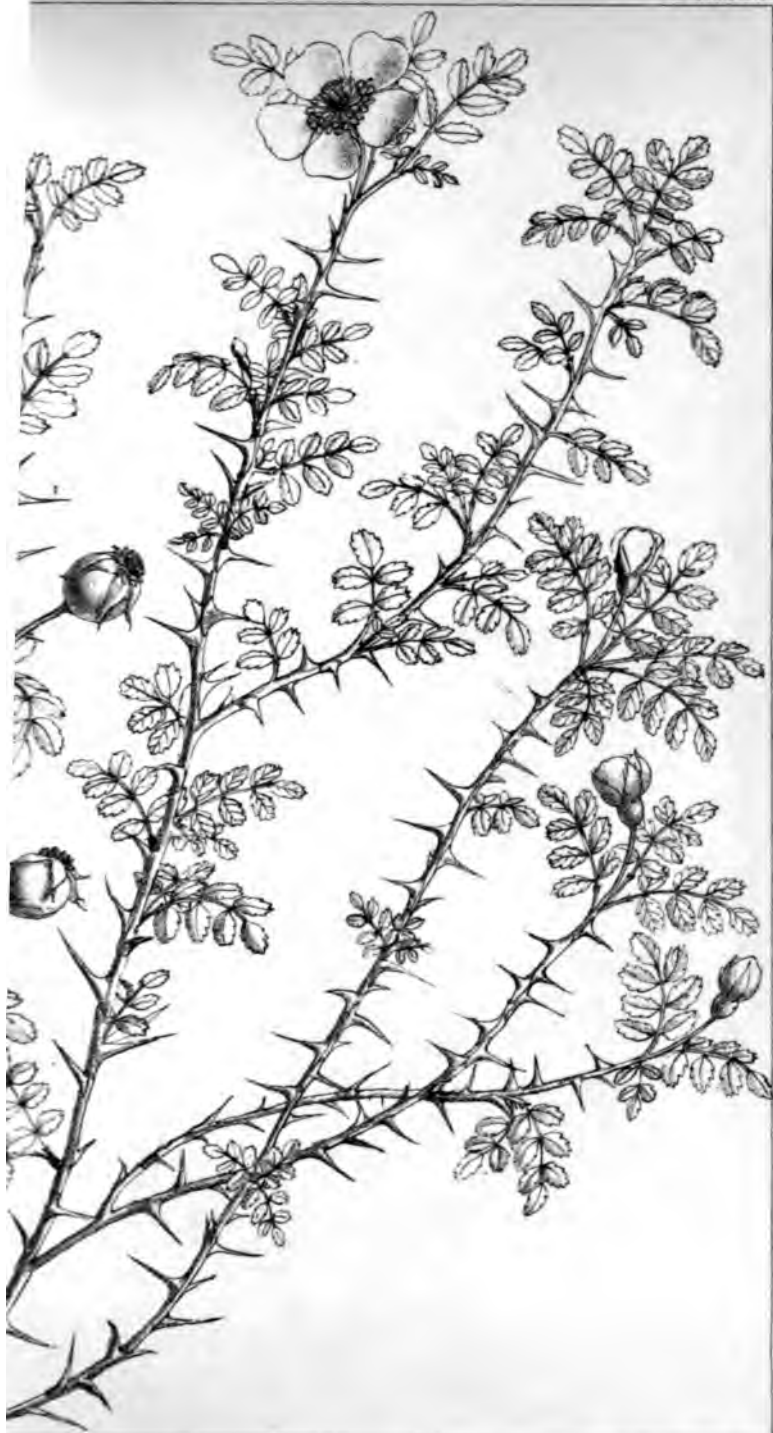
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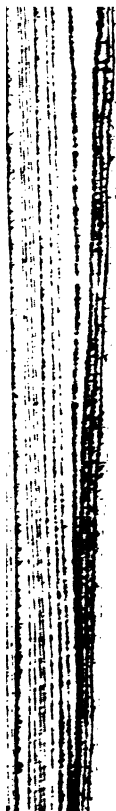


*Brunnichia africana*, Welw.





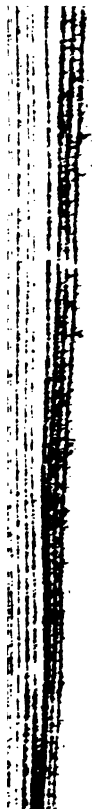
Rosa Ecaë, Aitch.

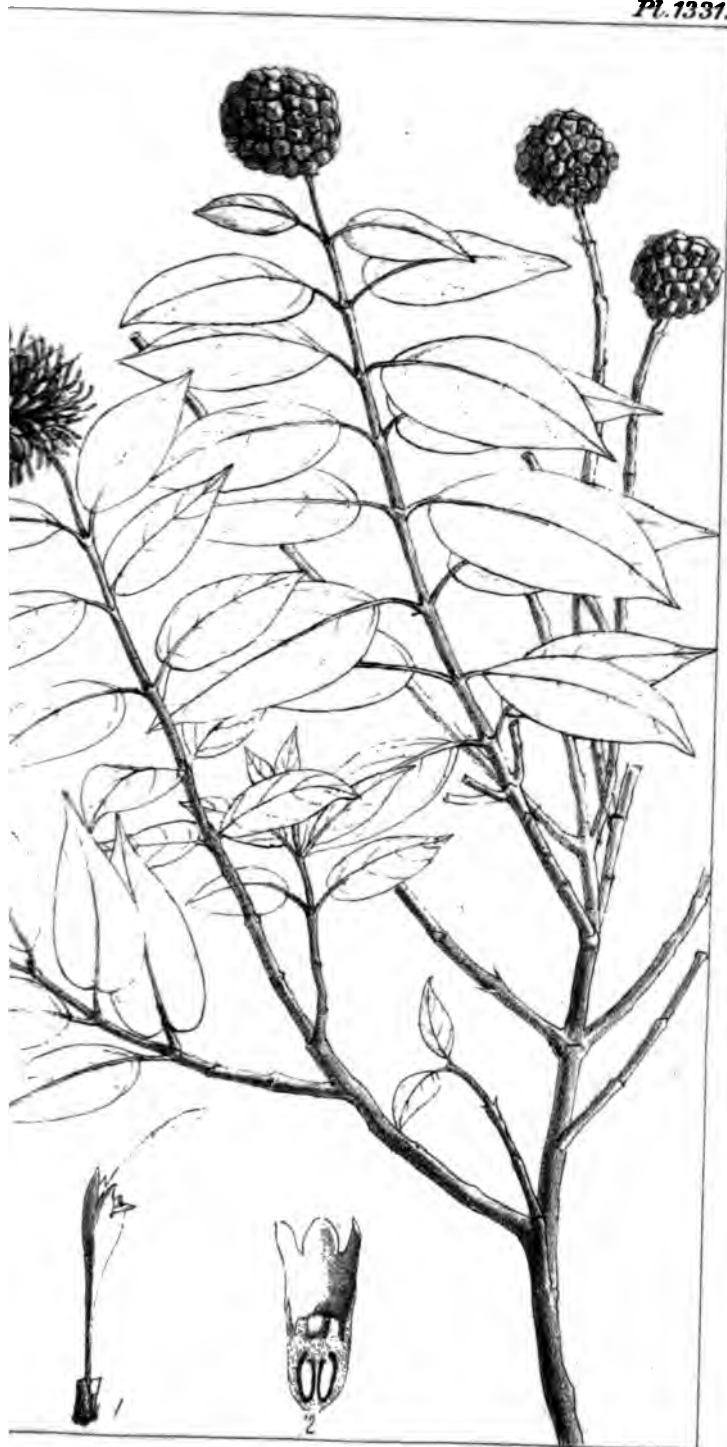




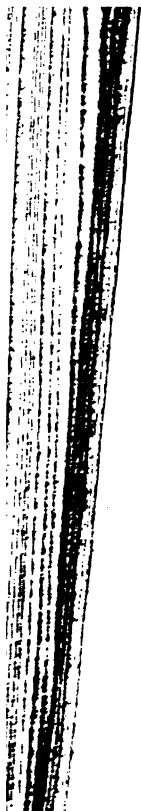
*Penianthus longifolius*, Miers. ♂

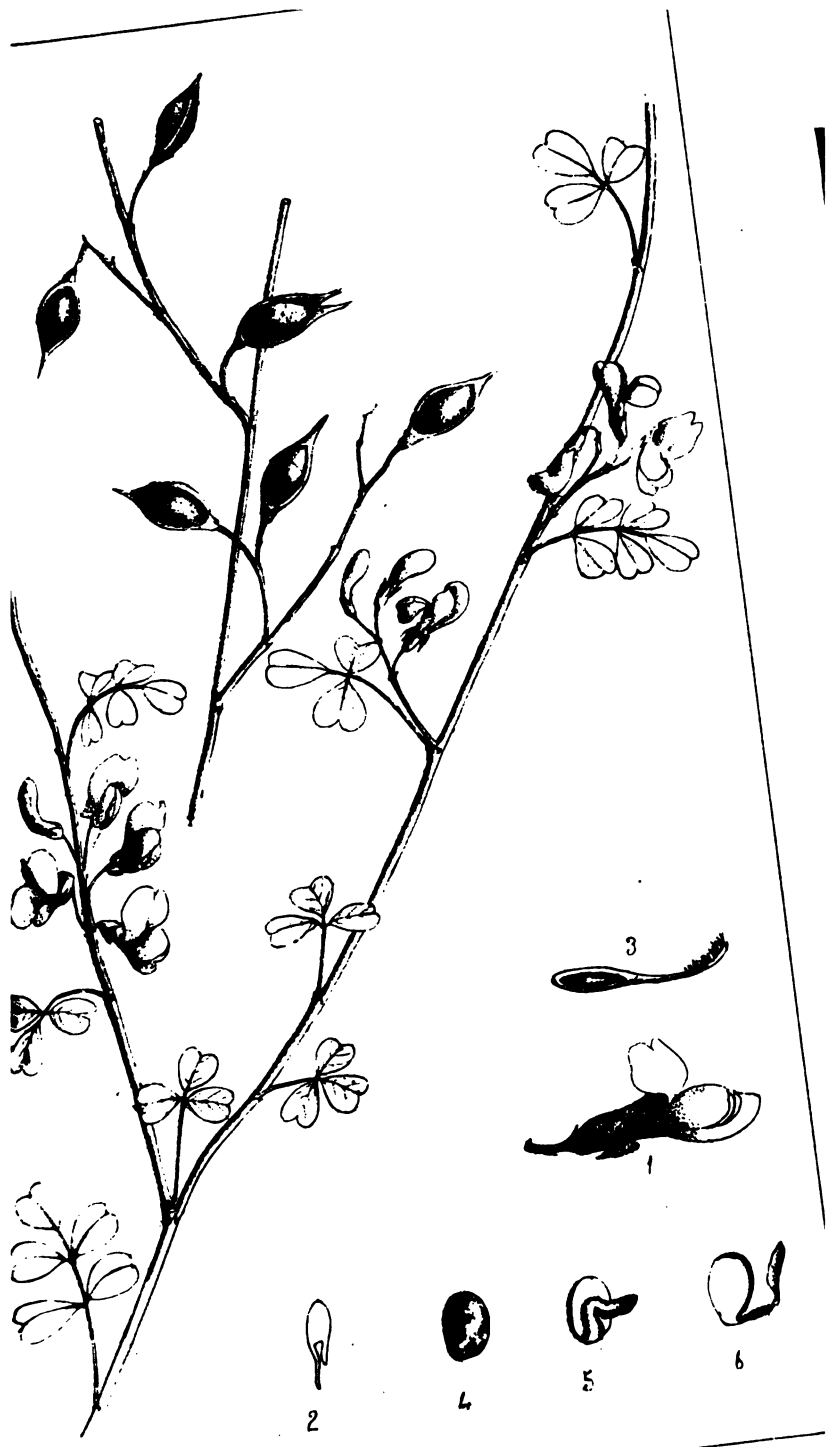






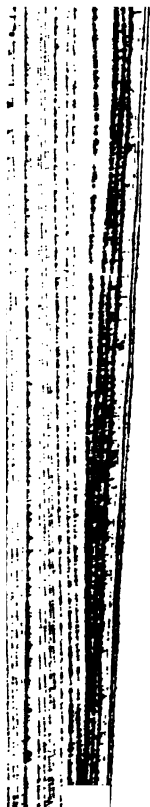
*Cephalanthus natalensis*, Oliv.





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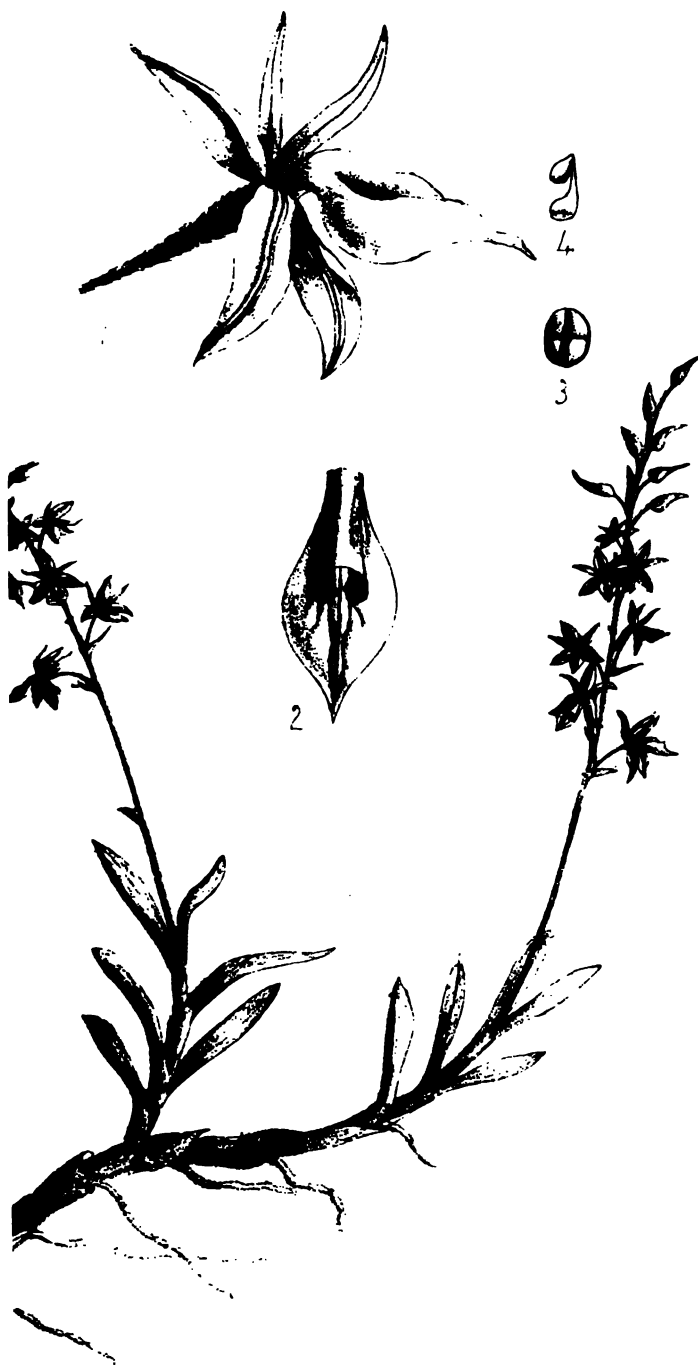
*Carmichaelia Kirkii*, Hk.f.





*ythrospermum polyandrum*, Oliv.





*Lanium microphyllum*, Lindl.







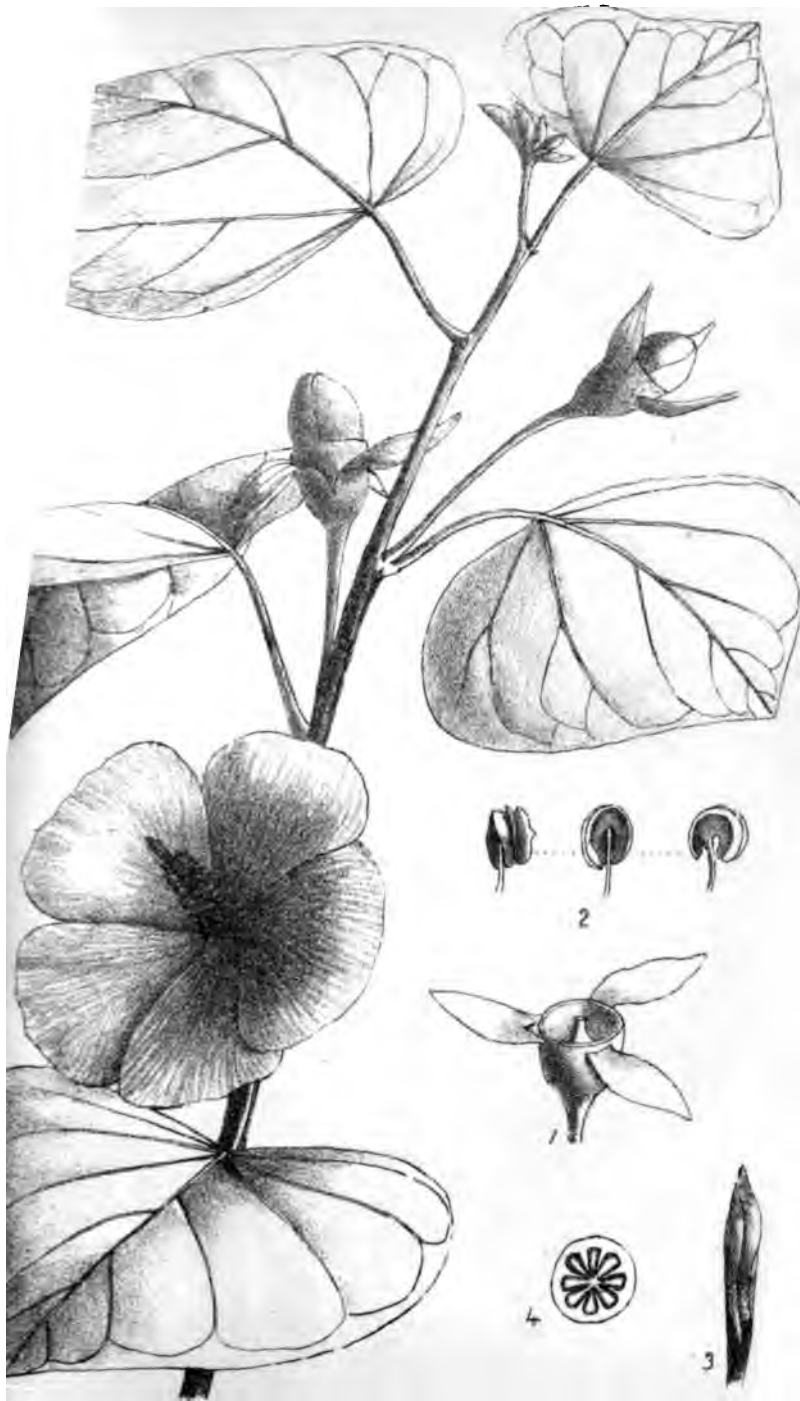
*L. anium* Avicula, Lindl.





Lanium Avicula, Lindl.





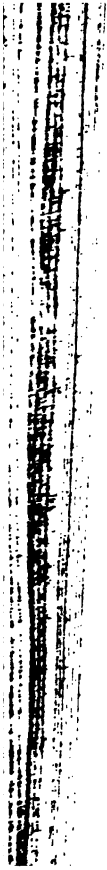
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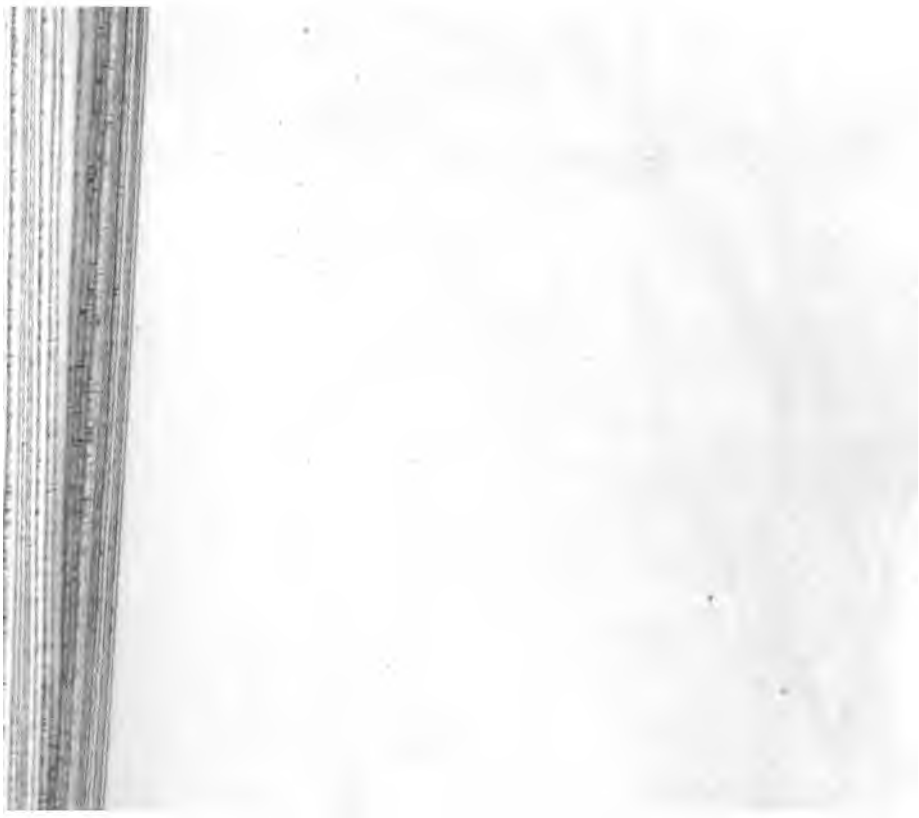
*Micronychia madagascariensis*, Oliv.







*Gamblea ciliata* C.B.Cl.





*Amphidoxa gnaphalodes*, D.C.





*Pentzia pinnatifida* Olv





*Courtoisia cyperoides*, Nees





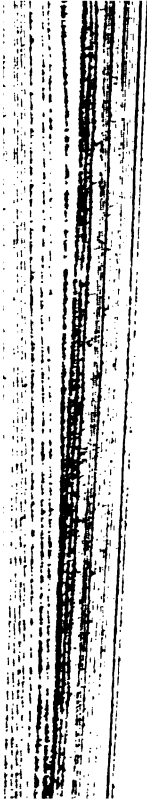


*Eriospora pilosa* Benth.





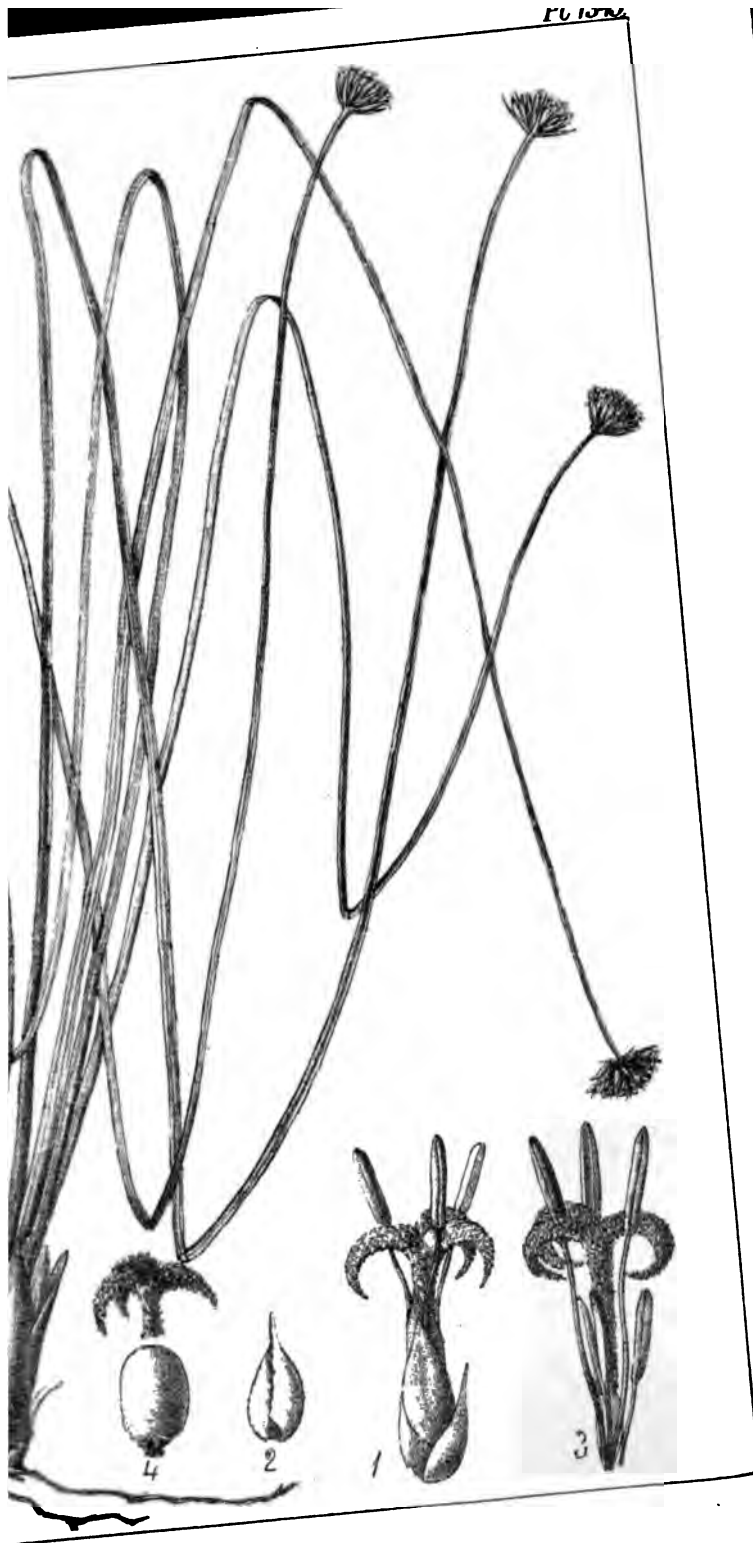
*Cyathochaete clandestina*, Benth.





*Rhynchospora ruppoides* Benth.





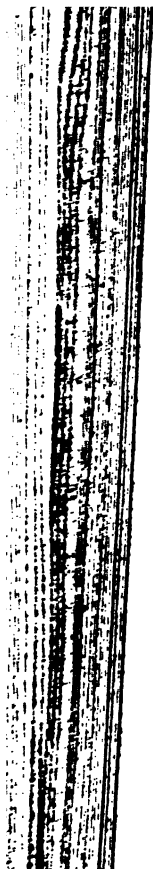
*Arthrostylis anhylla* R Br







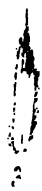
*Actinoschoenus filiformis*, Benth.





*Pteroscleria longifolia*, Griseb.





*Pianoptes capensis* Fenzl

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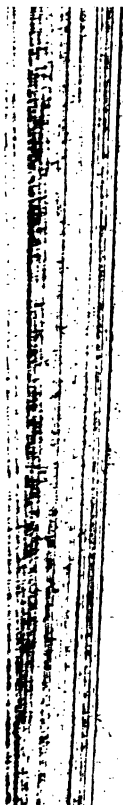
*Menziesia stenocepala*, Oliv.







*Acacia Hunteri*, Oliv.





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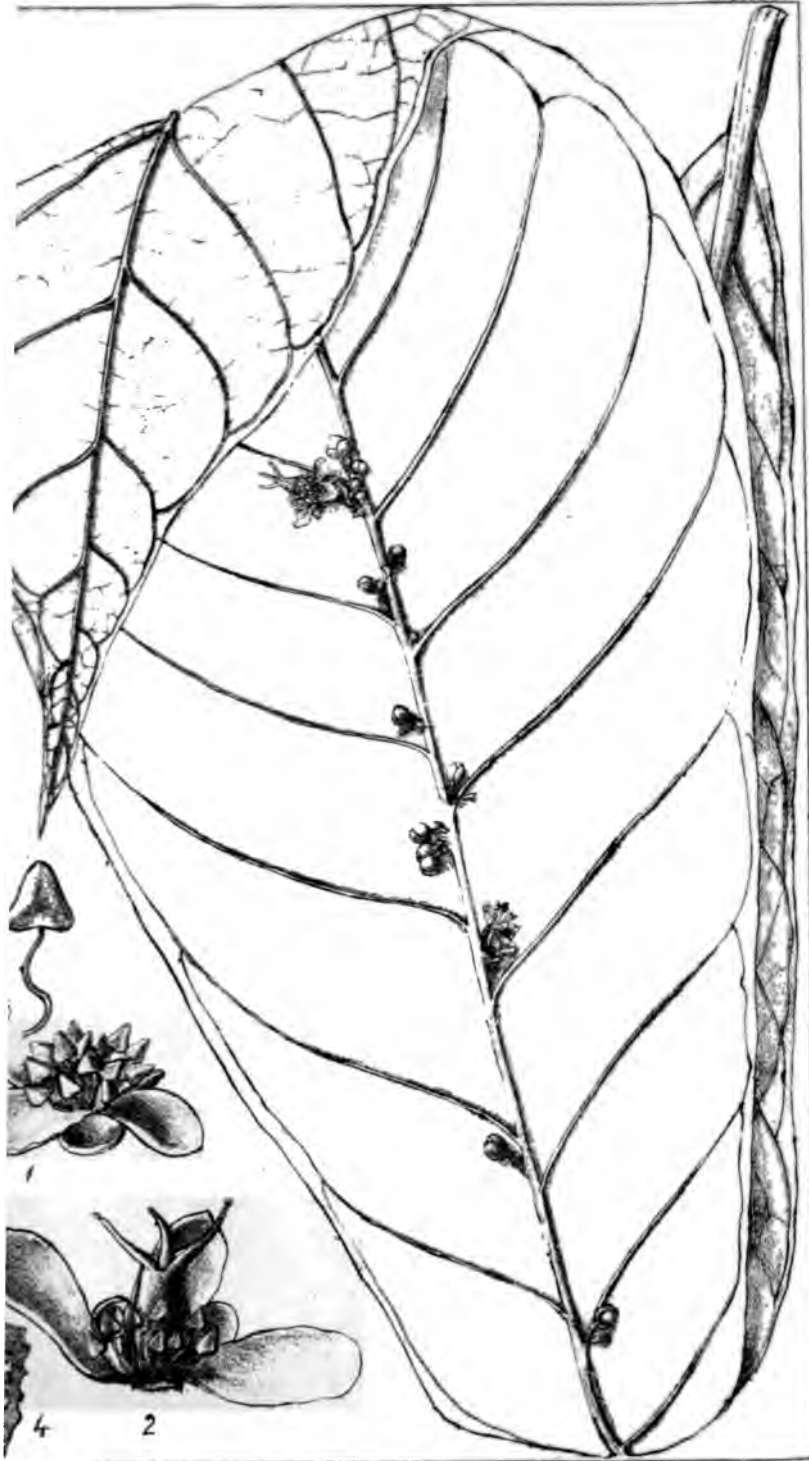
*Tecoma Nyassæ*, Oliv





*Regoniella Kalbreyeri*, Oliv.

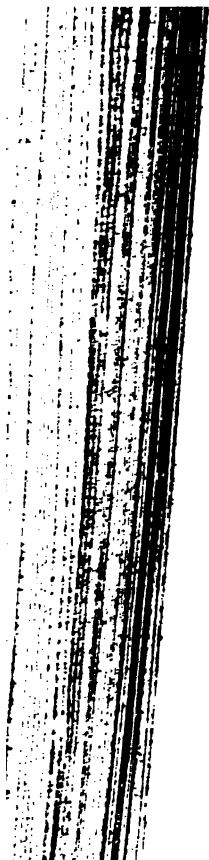




C. del

*Phyllobotryum spathulatum*, Muell., Arg.

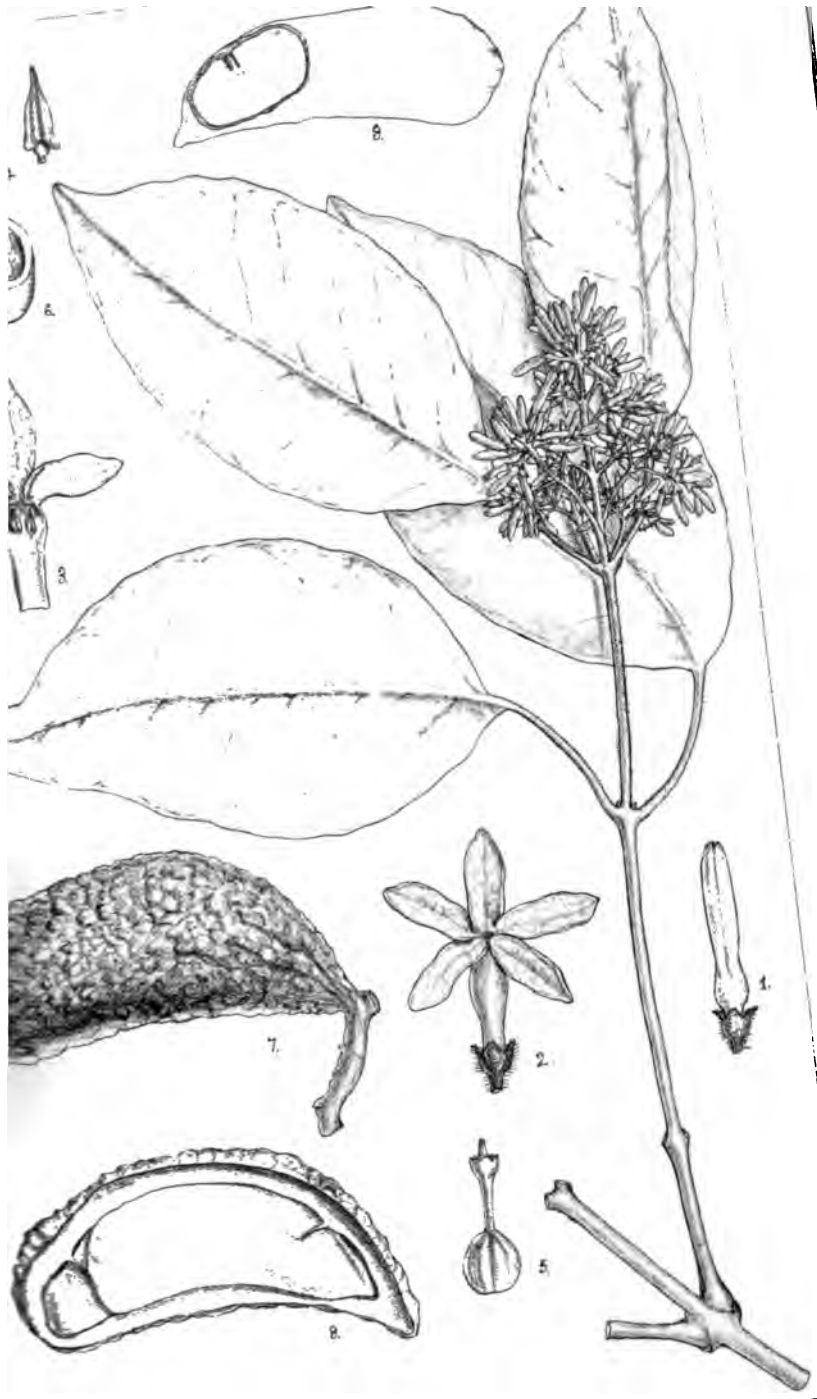




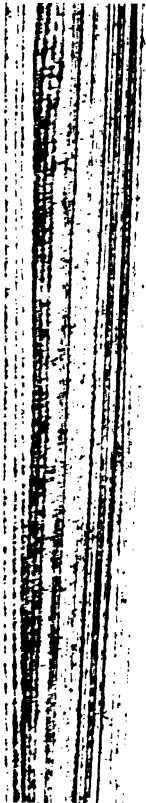


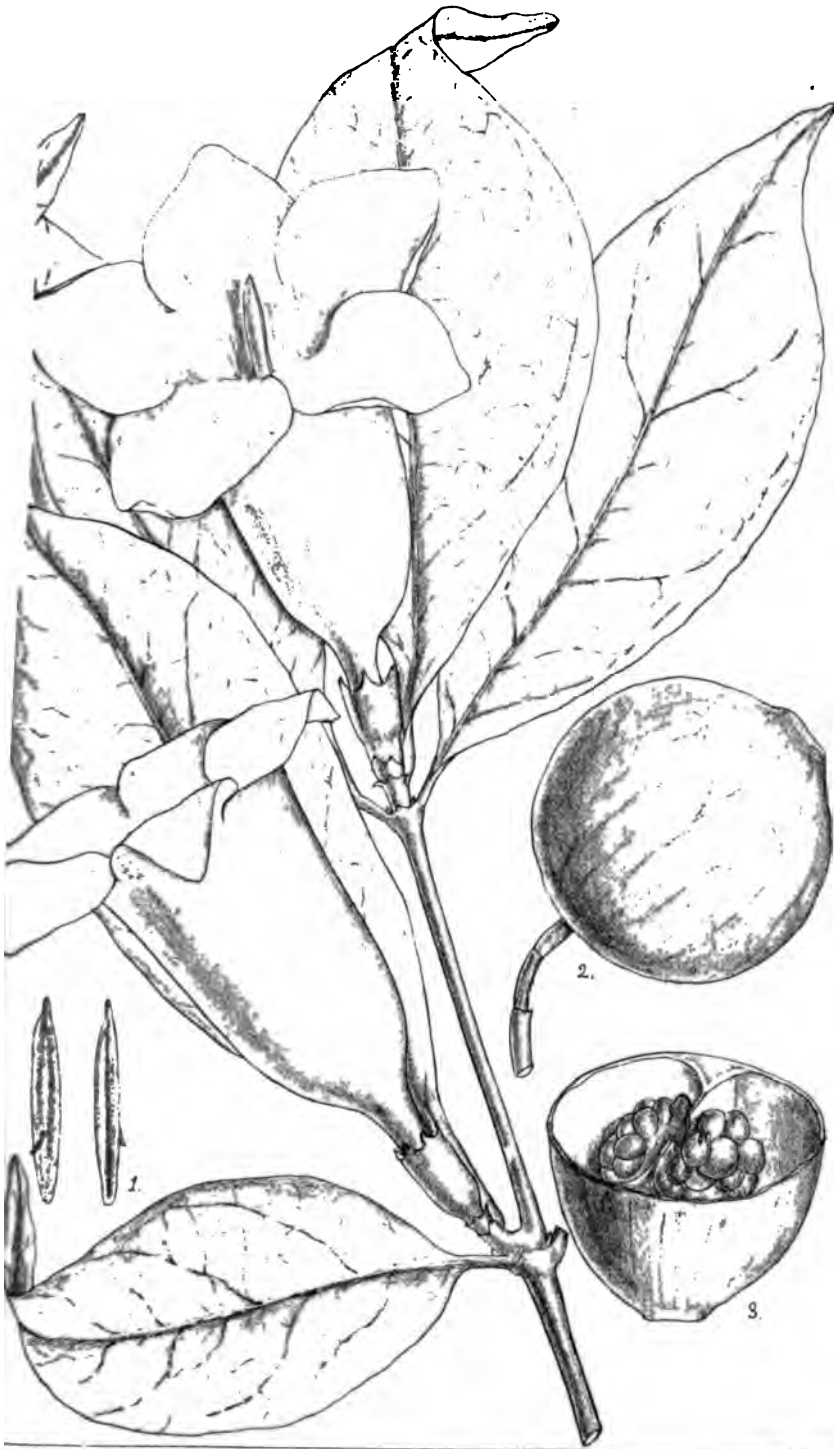
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*...limbus Mossambicensis, Benth.*





K. S. del

*Randia Buchanani* Oliv.

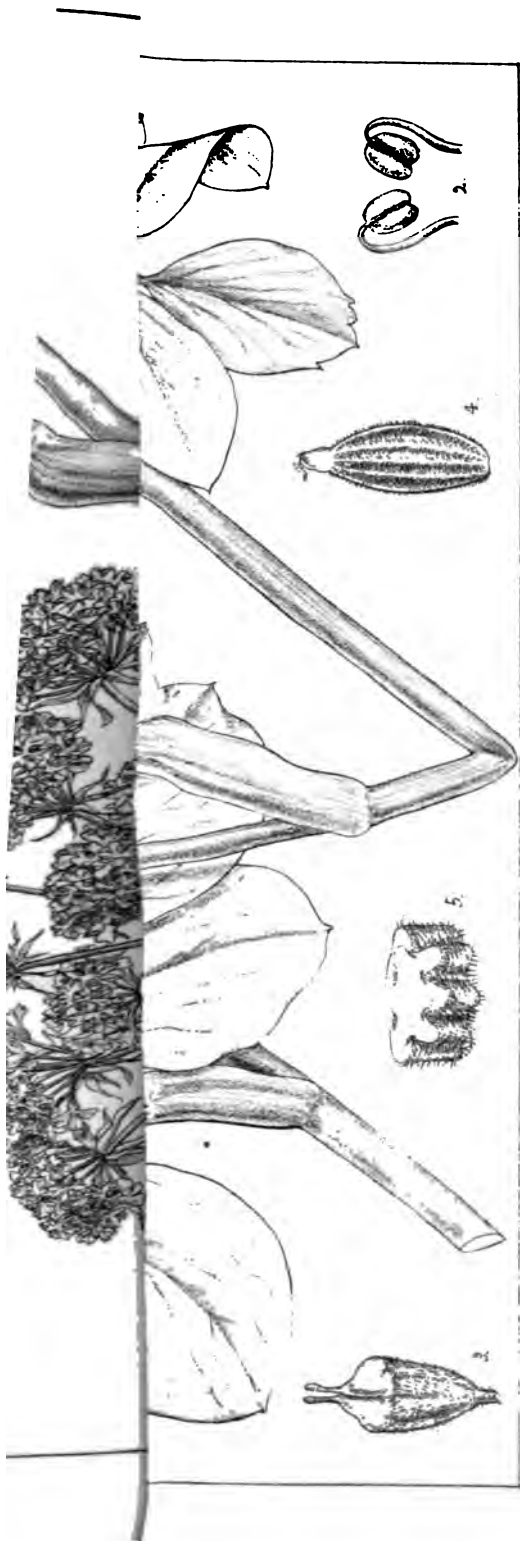




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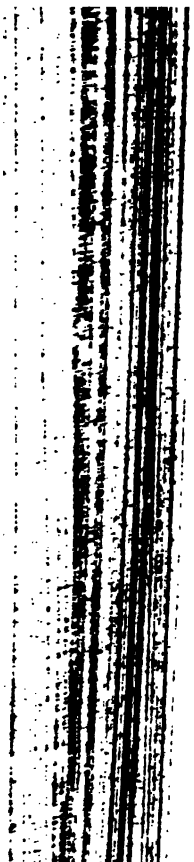




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*Physotrichia Buchananii*, Benth.



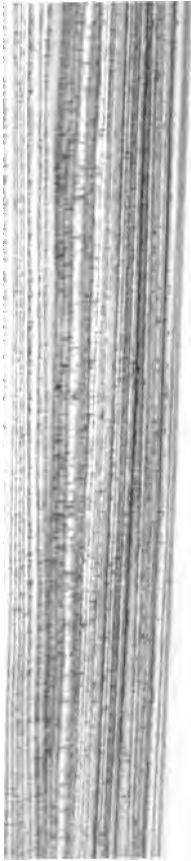








*Micraira subulifolia* F. Muell.

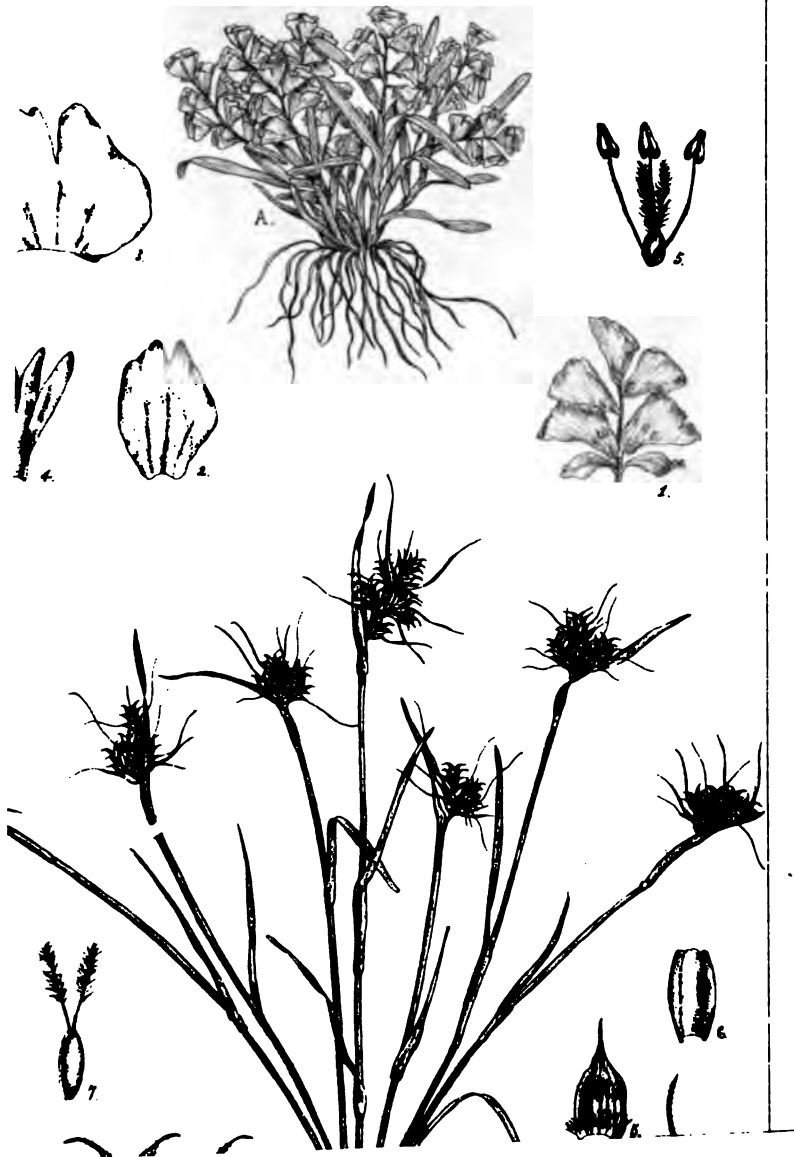






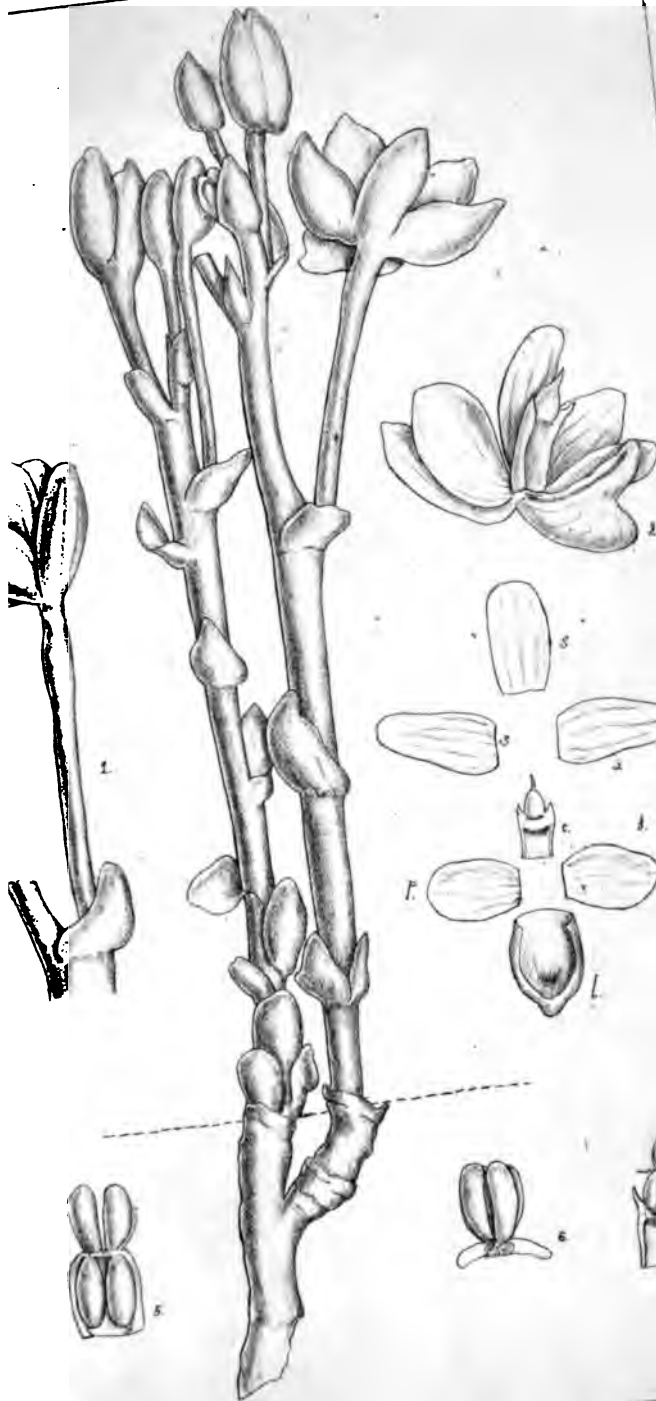
*Aciachne pulvinata* Benù



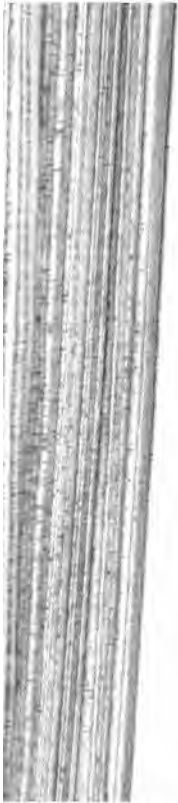


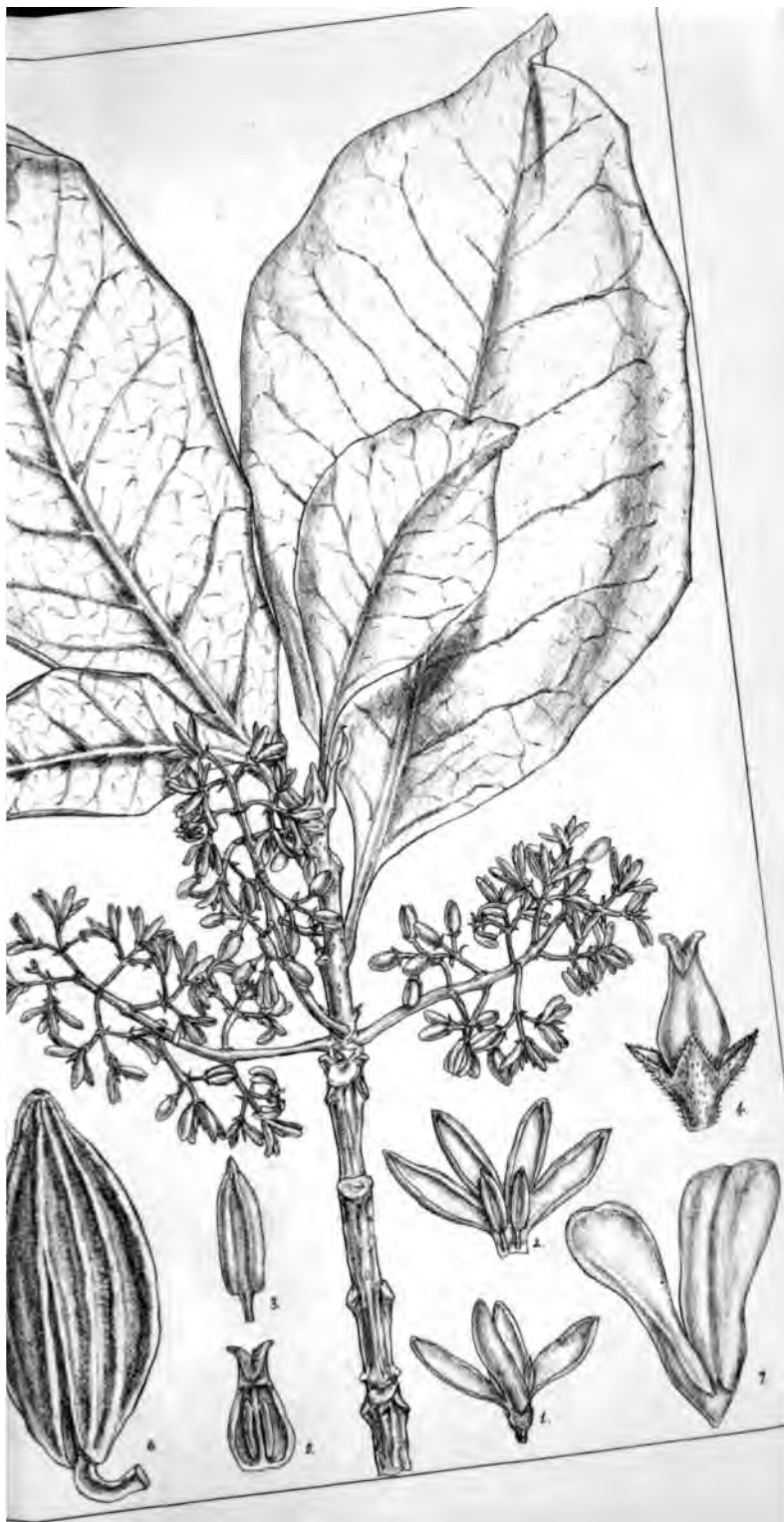
*Yoania japonica* Max.





Malva Max.





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... Broomeana, Horne.

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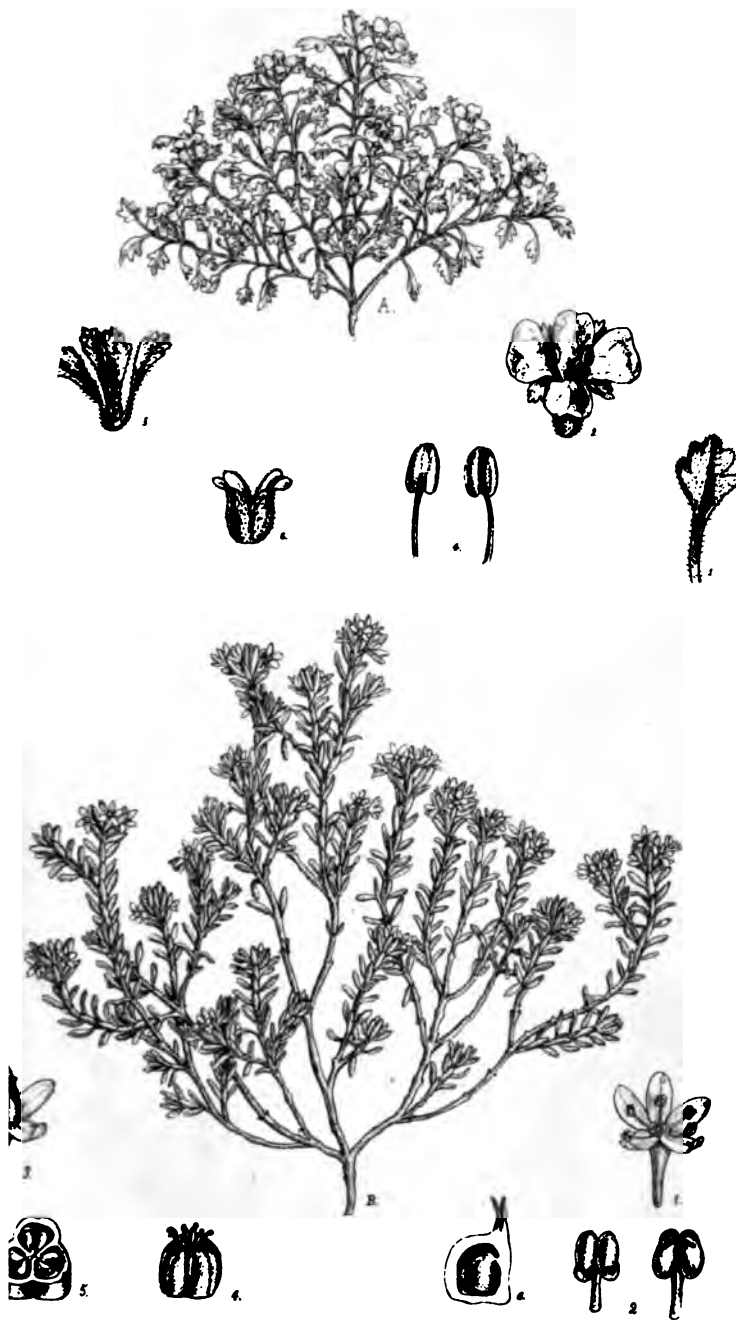
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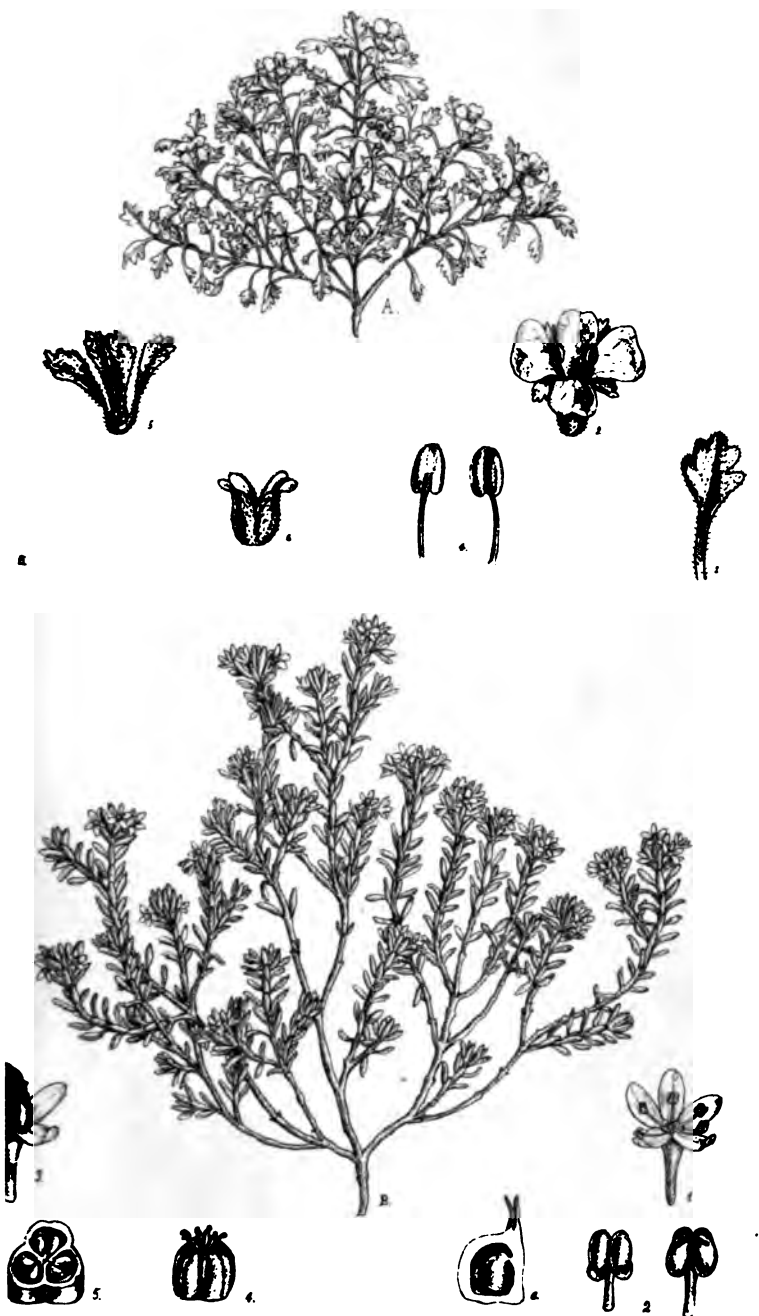


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Cheesem.

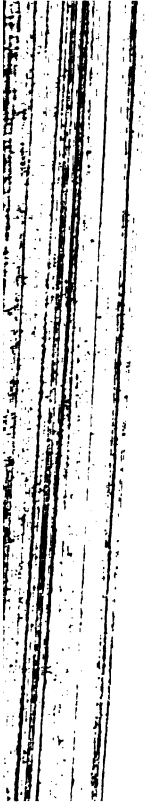
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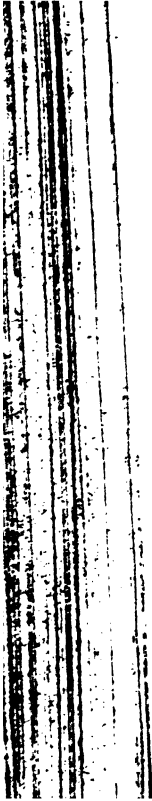


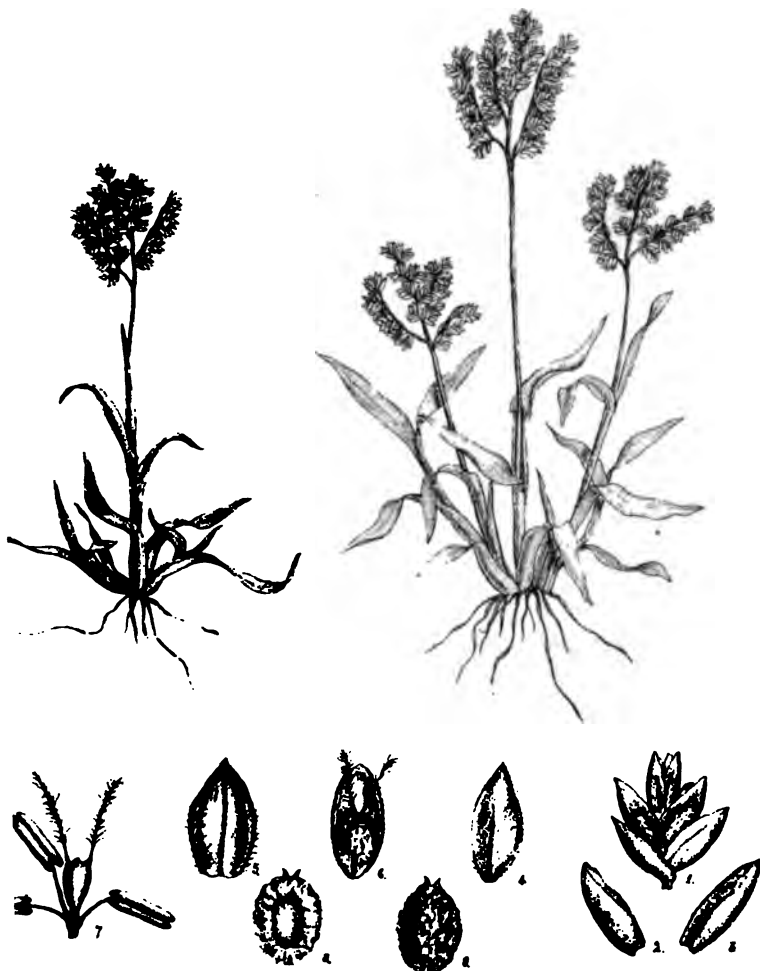
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 B. *Poranthera alpina* Cheesem.





*Rhanterium epapposum* Oliv.





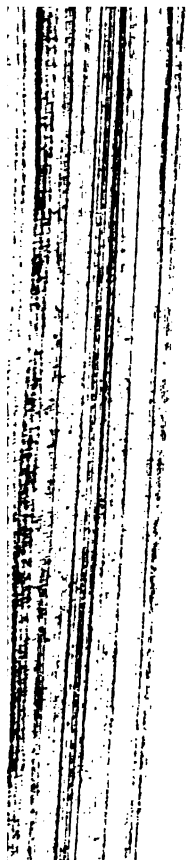
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*Nephelochloa orientalis* Boiss.



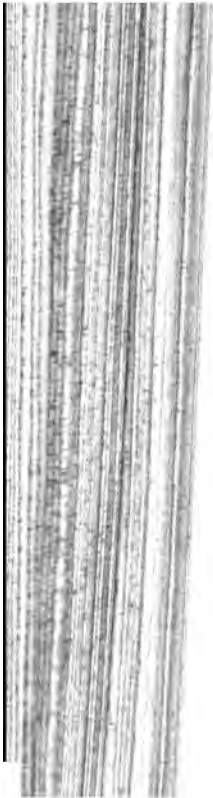


*Eragrostis Piercei* Benth.





*Eragrostis Schimperii* Benth





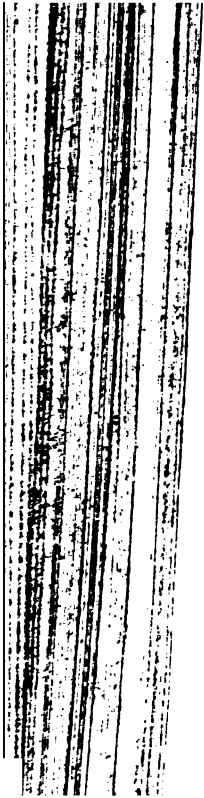
*Munroa squarrosa* Torr







*Fingerhuthia african*, Lehm



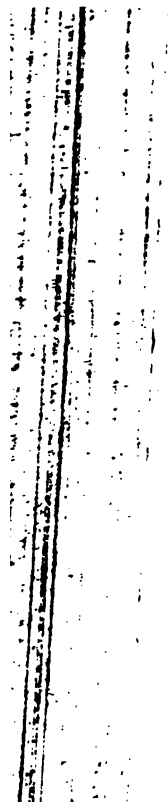


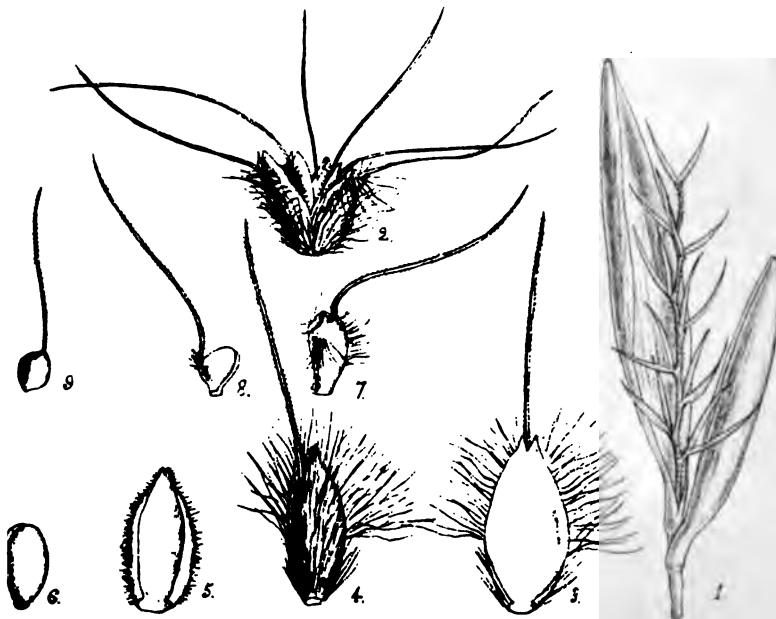
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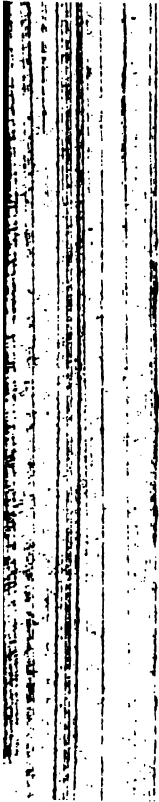
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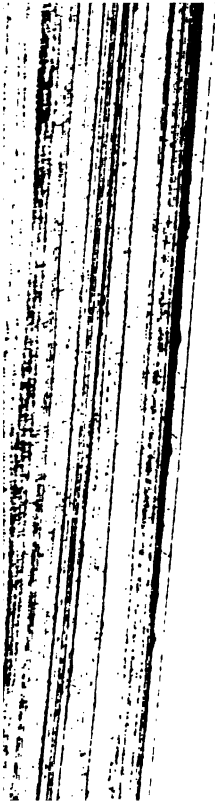
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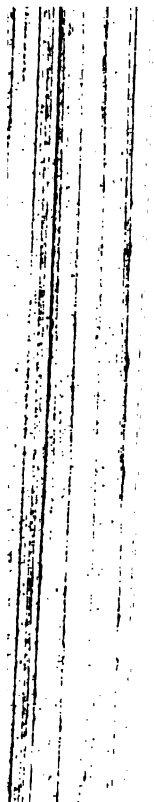
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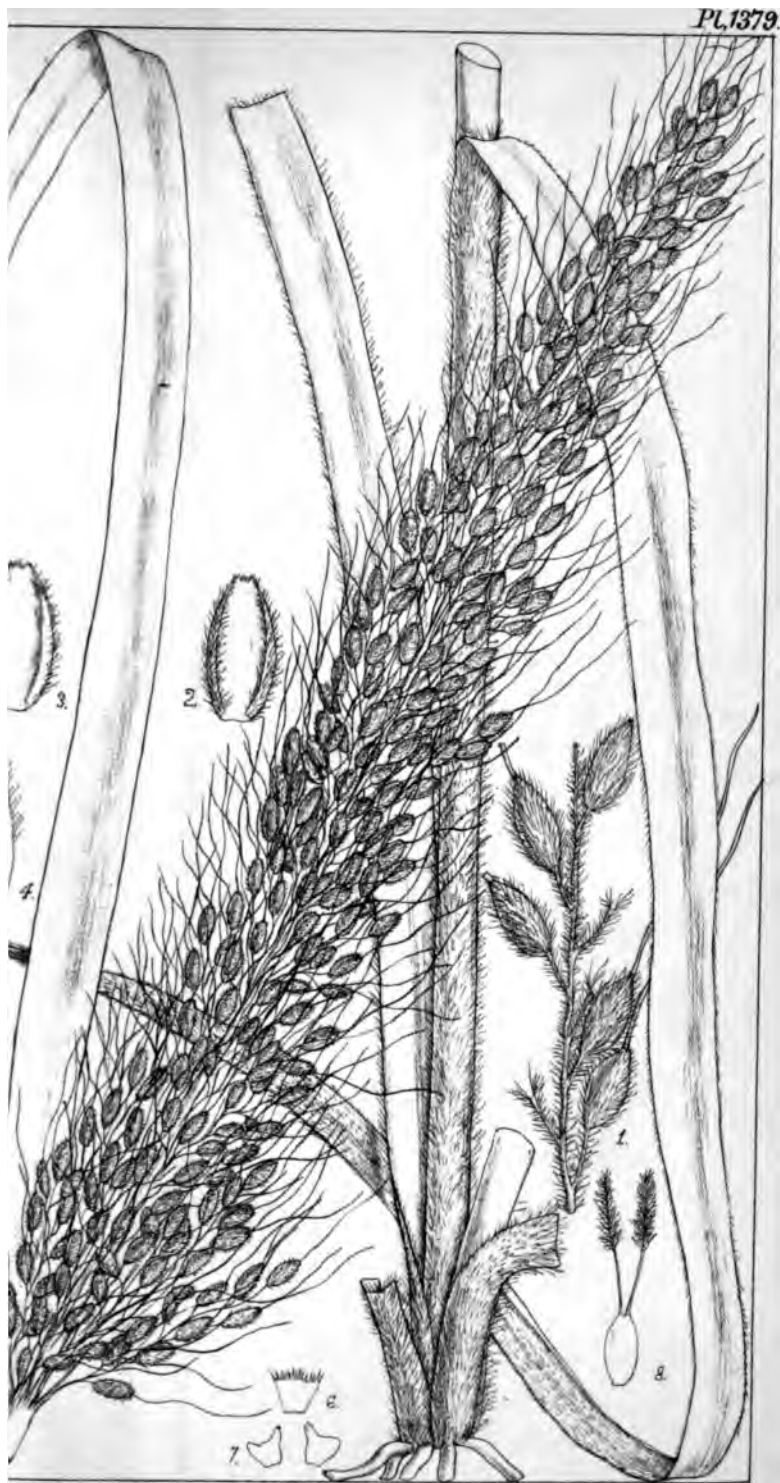




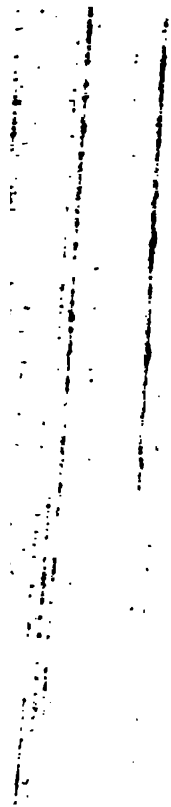
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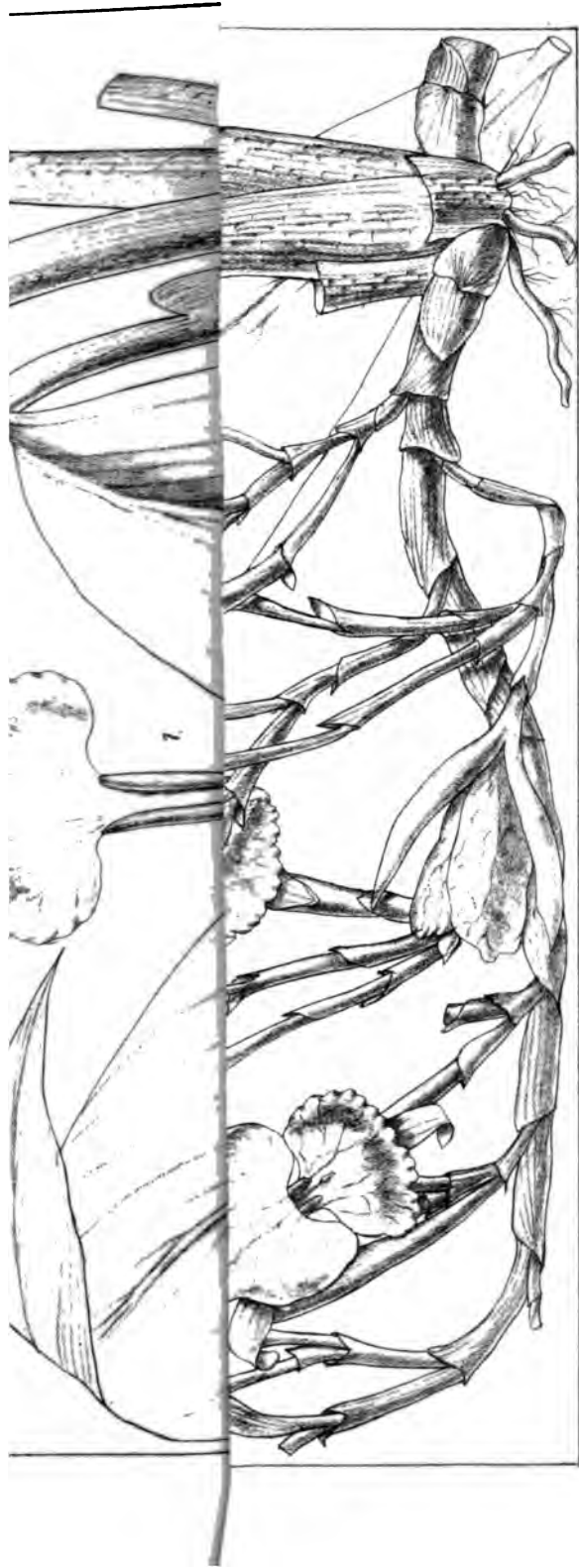
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*Cleistachne sorghoides*, Benth.



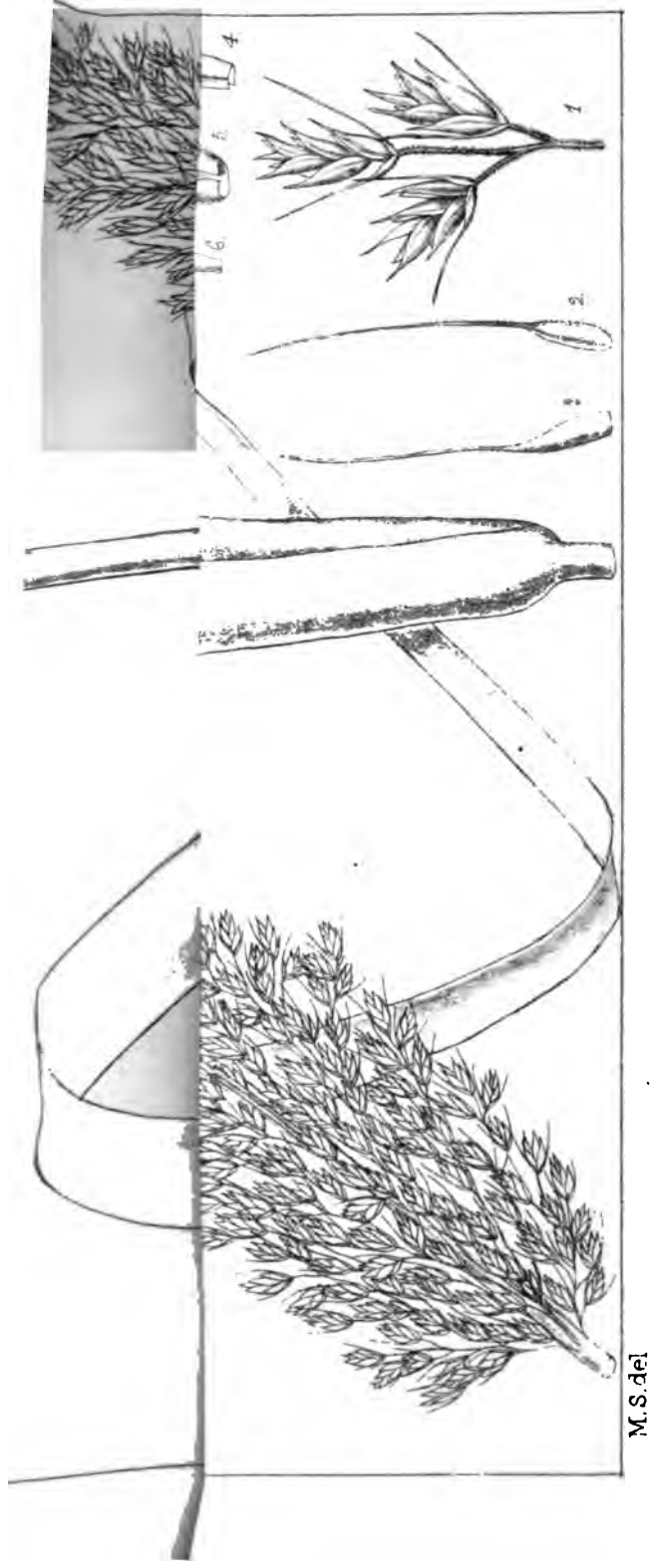


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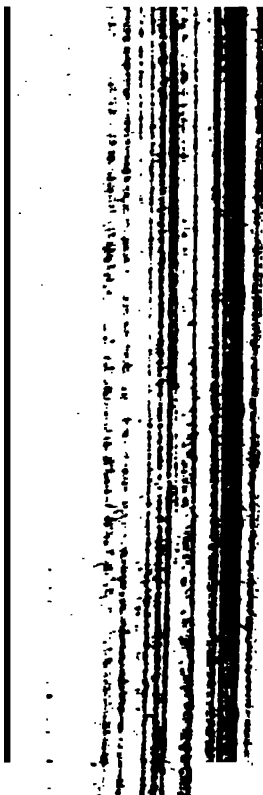
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*Eragrostis Wightiana*, Benth.





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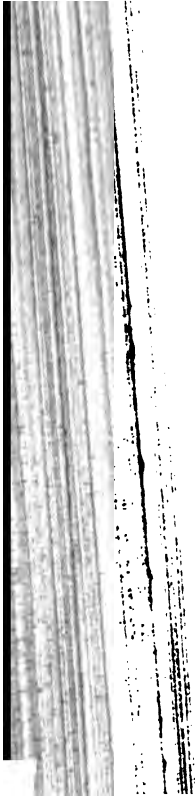
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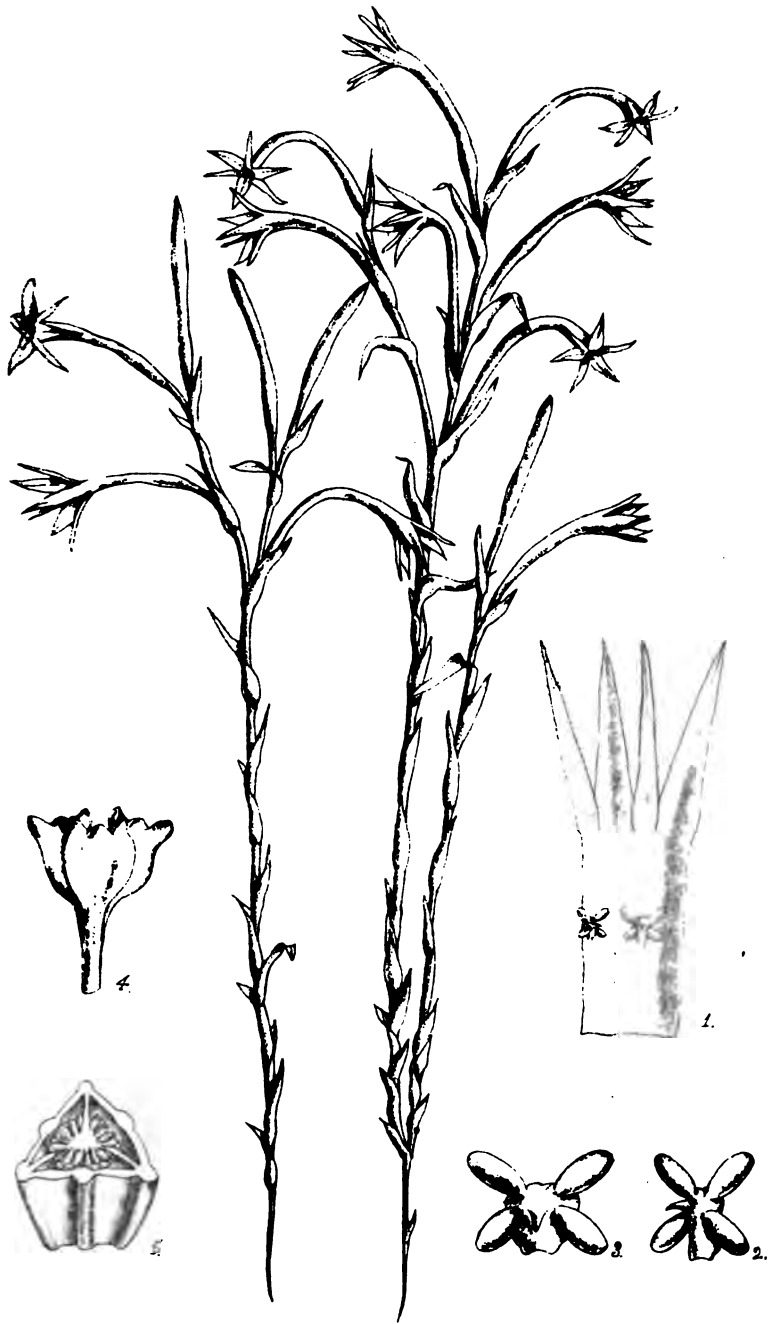




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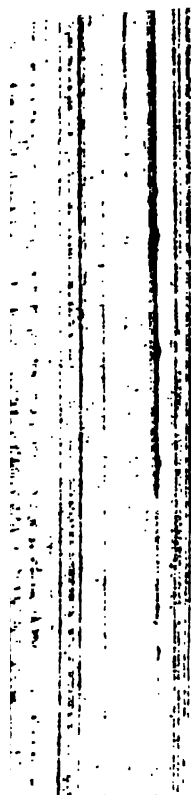
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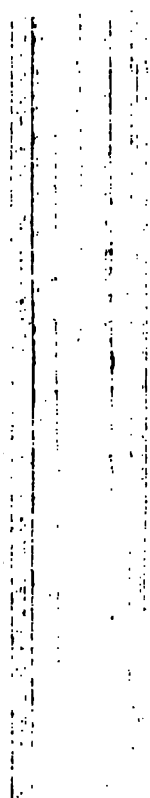
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*Helietta parvifolia*, Benth.



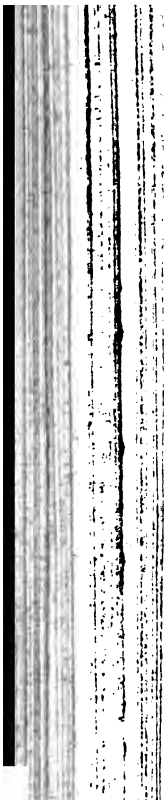


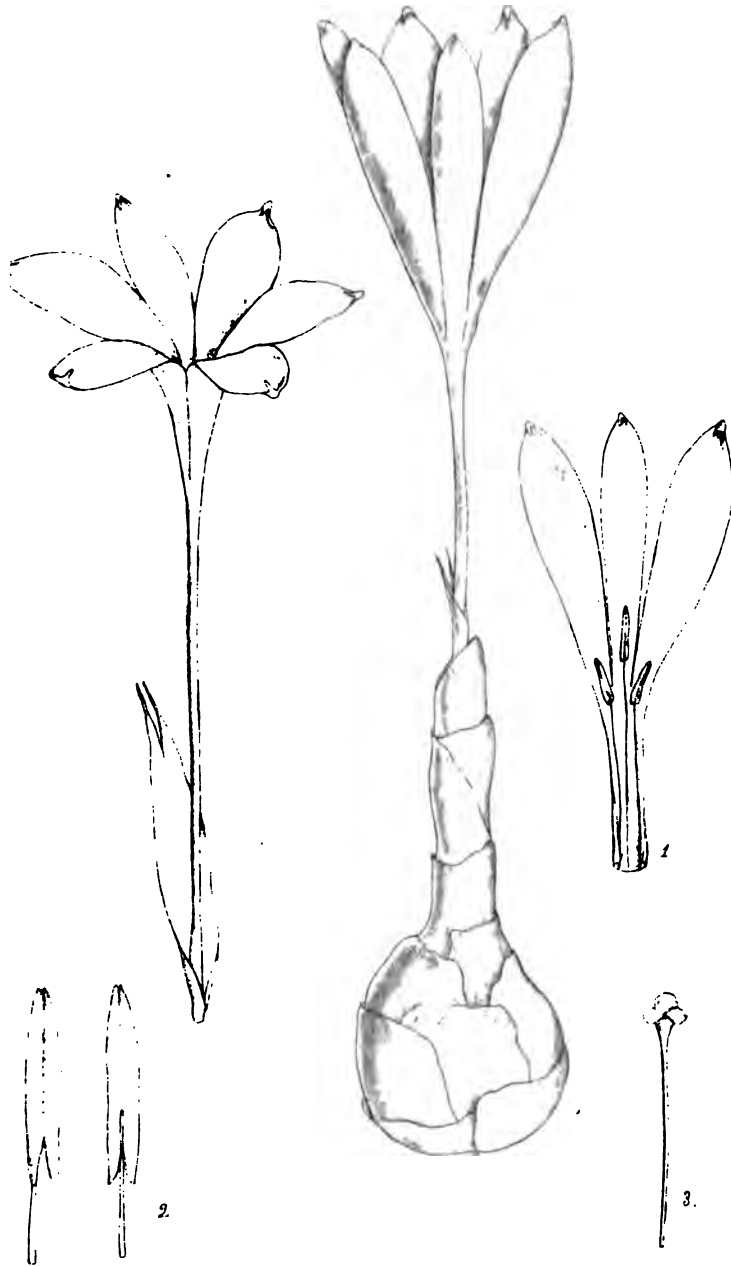
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*Niebuhria Woodii*, Oliv.



*Simaruba monophylla*, Oliv.





181

*Apodolirion Buchanani*, J.C.B.





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Leontochir Ovallei, Phil.





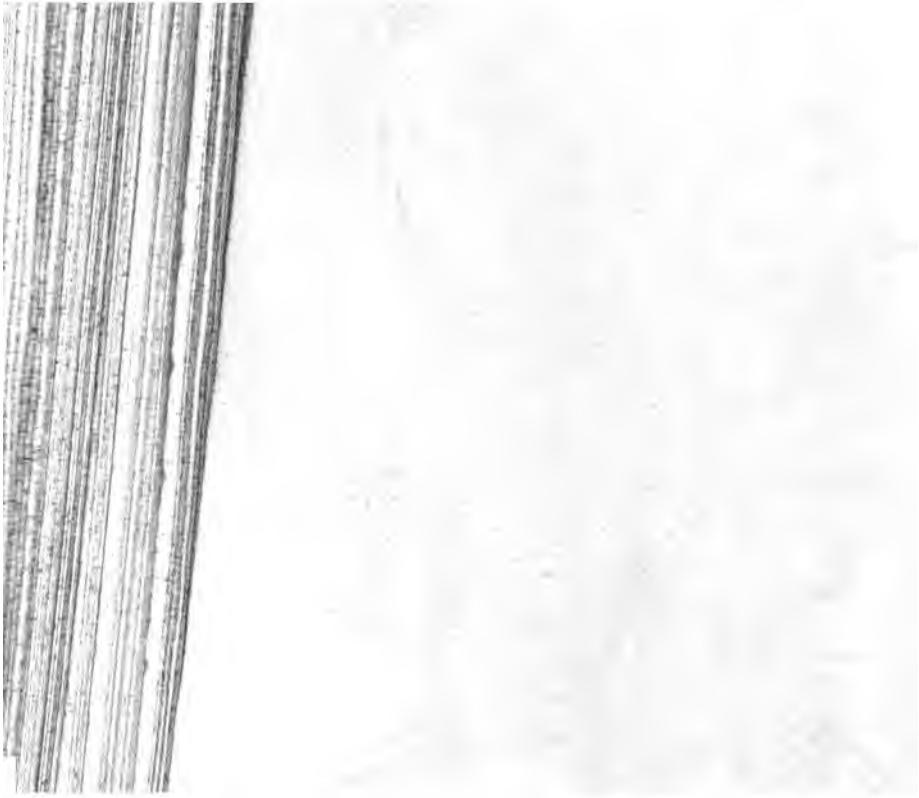
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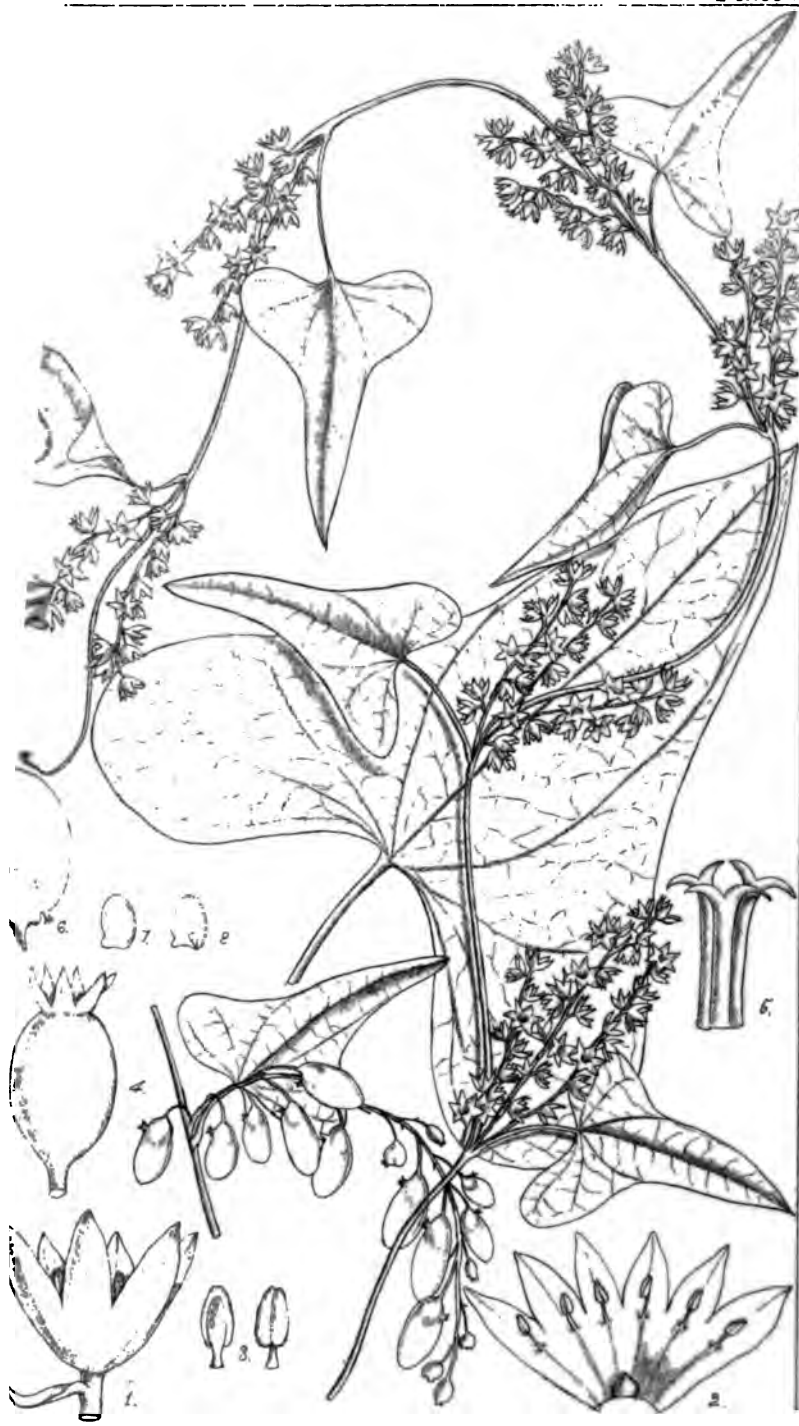
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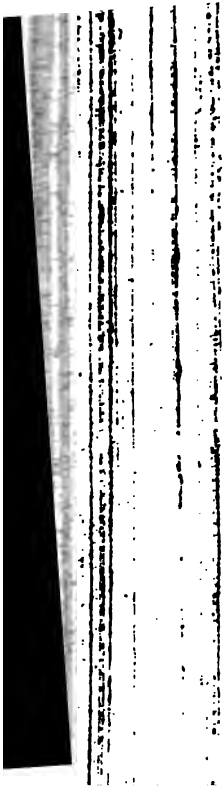
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*Rajania hastata*, L.





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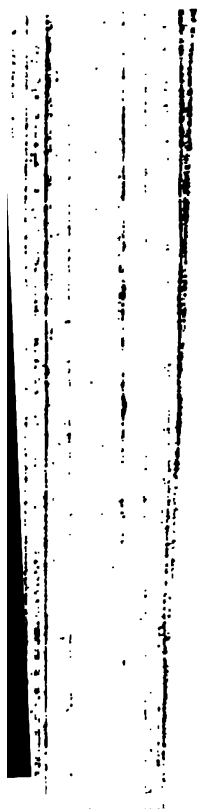






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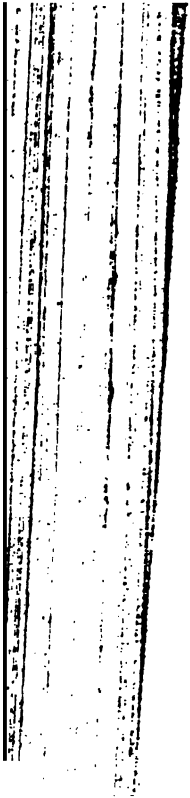
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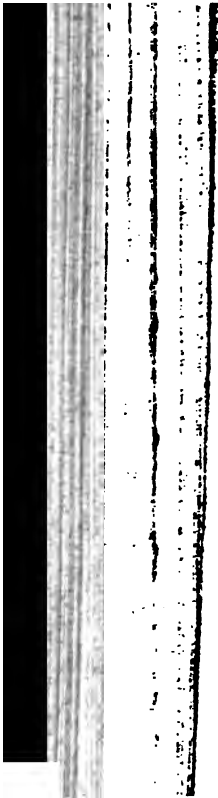
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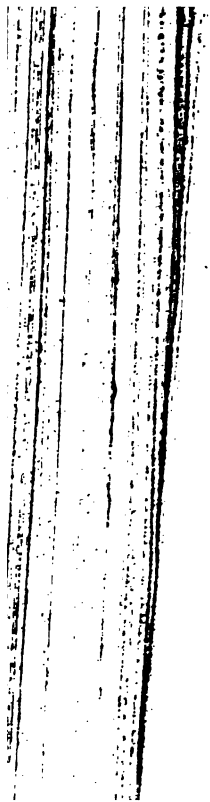
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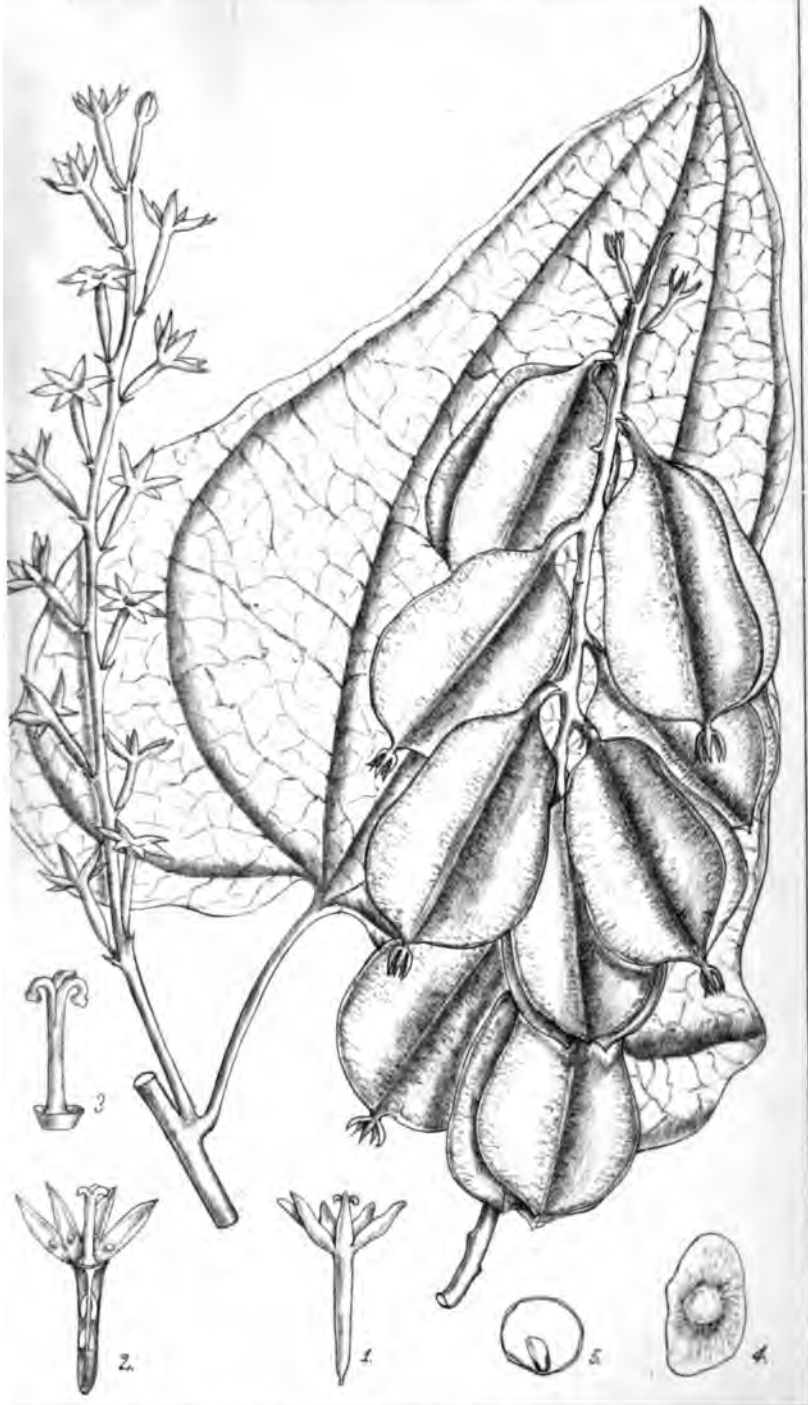




*Dioscorea Buchananii*, Benth. &

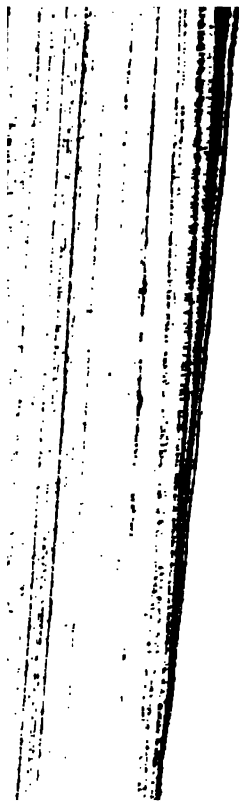


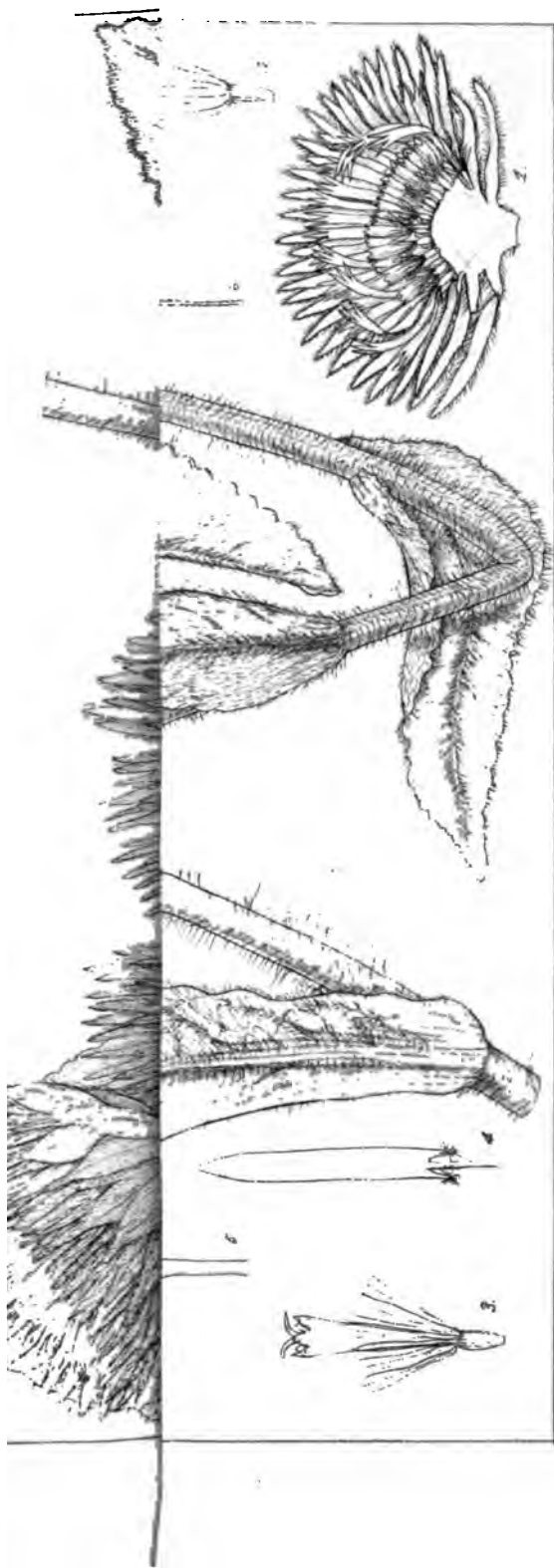




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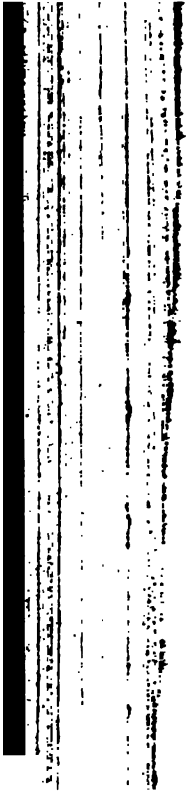
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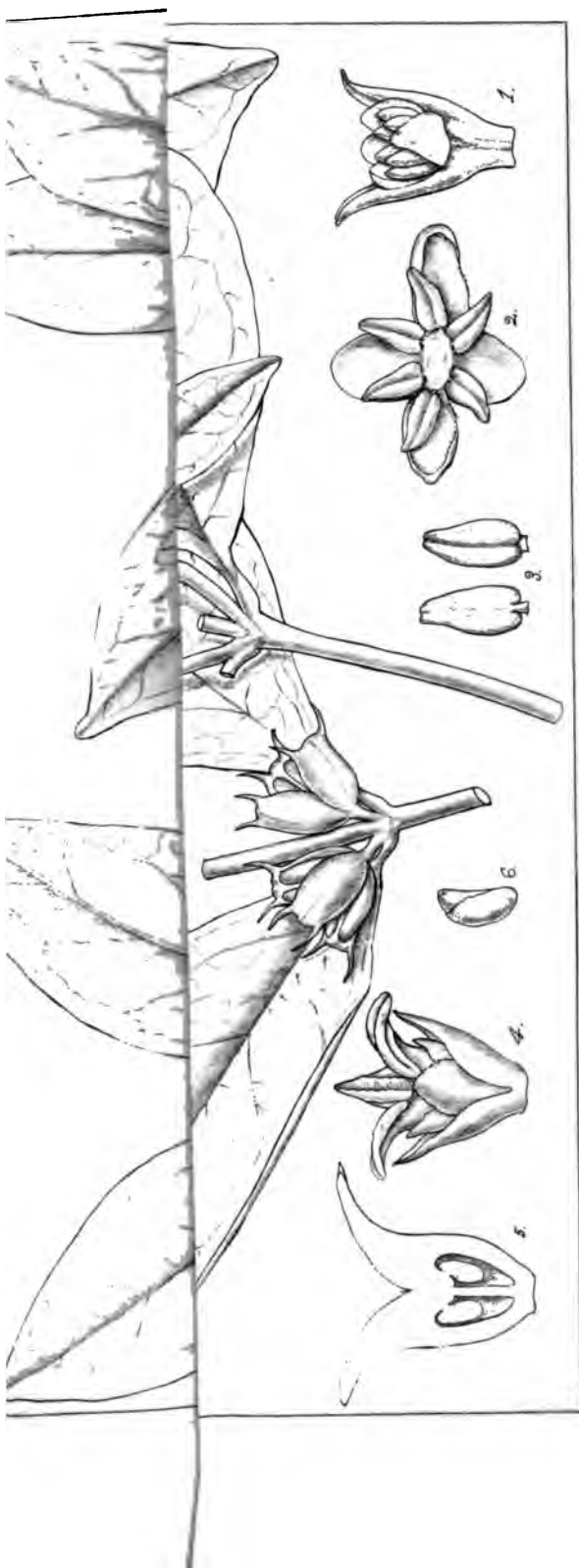




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*Inula shirensis* Oliv





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*Notobuxus natalensis*, Oliv.



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